
EXHIBIT P4

WEST GOSHEN SEWER AUTHORITY
ACT 537 PLAN DOCUMENTS

WEST GOSHEN TOWNSHIP

CHESTER COUNTY, PENNSYLVANIA

ACT 537

OFFICIAL WASTEWATER FACILITIES PLAN

JANUARY 1997

FINAL REPORT

Glace Associates, Inc.

CONSULTING ENGINEERS

3705 Trindle Road

Camp Hill, Pennsylvania 17011

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B	TOWNSHIP ORDINANCES
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G	PENNVEST FUNDING
H	STATE REVOLVING FUND
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J	INTERMUNICIPAL AGREEMENTS
K	SAMPLE OLDS ORDINANCE
L	NPDES PERMIT REQUIREMENTS
M	OTHER CORRESPONDENCE

ACT 537 PLAN CONTENT AND ENVIRONMENTAL ASSESSMENT CHECKLIST

For specific details covering the ACT 537 Planning Requirements, refer to Chapters 71 and 73 of the Department's Regulations.

A COPY OF THIS COMPLETED CHECKLIST MUST BE INCLUDED WITH YOUR ACT 537 PLAN. THE DEPARTMENT WILL USE THE "DER USE ONLY" COLUMN DURING THE COMPLETENESS EVALUATION OF THE PLAN. THIS COLUMN MAY ALSO BE USED BY THE DEPARTMENT DURING THE PREPLANNING MEETING WITH THE MUNICIPALITY TO IDENTIFY PLANNING ELEMENTS WHICH WILL NOT BE REQUIRED TO BE INCLUDED IN THE PLAN. ALL THE PLANNING ELEMENTS REQUIRED BY THE DEPARTMENT MUST BE ADDRESSED IN YOUR PLAN OR THE PLAN WILL BE RETURNED AS INCOMPLETE. THE PAGE NUMBER OR OTHER REFERENCE MUST BE LISTED IN COLUMN 2 OF THE CHECKLIST PRIOR TO PLAN SUBMITTAL. IF THE MUNICIPALITY DETERMINES THAT ANY ITEMS LISTED IN THIS CHECKLIST DO NOT APPLY, OR CONDITIONS STATED IN A CERTAIN PART OF THIS CHECKLIST DO NOT EXIST IN AN AREA, A COMMENT MUST BE INCLUDED IN COLUMN 2 WHICH STATES THAT THE PARTICULAR CHECKLIST ITEM WILL HAVE NO IMPACT ON THE PLAN OR THAT IT DOES NOT EXIST IN THE PLANNING AREA. WHEN INFORMATION REQUIRED AS PART OF AN OFFICIAL PLAN UPDATE REVISION HAS BEEN DEVELOPED SEPARATELY OR IN A PREVIOUS UPDATE REVISION, INCORPORATE THE INFORMATION BY REFERENCE TO THE PLANNING DOCUMENT AND PAGE. THREE COPIES OF THE COMPLETED PLAN WITH ALL ATTACHMENTS MUST BE SUBMITTED TO THE DEPARTMENT.

Municipality: West Goshen Township County: Chester
 Local Municipal Contact Official: John Scott Telephone Number of Official: (610) 696-0900
 Consultant: Glance Associates, Inc. Consultant's Telephone Number: (717) 731-1579
 Consultant's Contact Person: Max E. Stoner
 Title of Submission: West Goshen Township
Act 537 Official Wastewater Date Submitted: _____
Facilities Plan - September 1995
☒ 3 copies of Plan submitted to the Department (including supporting documentation)

COMPLETENESS CHECKLIST

DER Use Only	Indicate Page #(s) in Plan	Item Required
	TOC 1 - 7	1. Table of Contents
		2. Plan Summary
	PS-1 to 4	A. Identify the proposed service areas and major problems evaluated in the plan. (Reference-Title 25, § 71.21.a.7.i)
	PS-5 to 6	B. Identify the alternative(s) chosen to solve the problems and serve the areas of need identified in the plan. Also, include any institutional arrangements necessary to implement the chosen alternative(s). (Reference-Title 25, § 71.21.a.7.ii)
	PS-6 to 7	C. Include the cost of implementing the proposed alternative (including the user fees) and the proposed funding method to be used. (Reference-Title 25, § 71.21.a.7.iii)
	PS-7	D. Identify the municipal commitments necessary to implement the plan. (Reference-Title 25, § 71.21.a.7.iii)

<u>PS-8</u>	E. Provide a schedule of implementation for the project which identifies the major milestones with dates necessary to accomplish the project to the point of operational status. Other milestones in the project implementation schedule should be indicated as occurring a finite number of days from a major milestone. (Reference-Title 25, § 71.21.a.7.iv)
<u>PS-9 to 10</u>	F. - Include dates for the future initiation of feasibility evaluations in the project's implementation schedule for areas proposing completion of sewage facilities for planning periods in excess of five years. (Reference-Title 25, § 71.21.b)
<u>PS-11 to 13</u>	3. Original, signed and sealed Resolution of Adoption by the Municipality which contains, at a minimum, alternatives chosen and a commitment to implement plan as stated in the implementation schedule. (Reference-Title 25, § 71.31.f) Section V.F of Guidance.
<u>PS-14 to 15</u>	4. Evidence that the municipality has requested, reviewed, and considered comments by appropriate official: planning agencies of the municipality, planning agencies of the county, planning agencies with area wide jurisdiction (where applicable), and existing county or joint county departments of health. (Reference-Title 25, § 71.31.b) Section V.E.1. of guidance.
<u>PS-16 to 17</u>	5. Proof of Public Notice which documents proposed plan adoption, plan summary, and the establishment of a 30 day comment period. (Reference-Title 25, § 71.31.c) Section V.E.2 of guidance.
<u>PS-18 to 19</u>	6. Copy of ALL written comments received and municipal response to each comment in relation to the proposed plan. (Reference-Title 25, 71.31.c) Section V.E.2 of guidance.
<u>PS-20 to 21</u>	7. Project Implementation Schedule. (Provide projected milestone dates and be detailed for each existing and future needs area). (Reference - Title 25, § 71.31.d) Section F of Guidance.
<u>PS-22</u>	8. Project Implementation Ordinances (Provide existing ordinances or include the development of new ordinances in the schedule of implementation.) (Reference-Title 25, § 71.21.a.5.vi.D) Section V.F of guidance.
<u>PS-23</u>	9. Written documentation indicating that the appropriate agencies have received, reviewed and concurred with the method proposed to resolve identified inconsistencies within the proposed alternative and consistency requirements in 71.21.(a)(5)(i)-(iii). (Reference-Title 25, § 71.31.e) Appendix B of guidance.

GENERAL PLAN

I. Previous Wastewater Planning

A. Identify and analyze all existing wastewater planning that:

<u>GP-1 to 2</u>	1. Has been previously undertaken under the Sewage Facilities Act (Act 537). (Reference-Act 537, Section 5, § d.i)
<u>GP-2</u>	2. Has not been carried out according to an approved implementation schedule contained in the plans. (Reference-Title 25, § 71.21.a.5.i.A - D) Section V.F of Guidance.

DER Use Only	Indicate Page #(s) in Plan	Item Required
	<u>GP-2</u>	3. Is anticipated or planned by applicable sewer authorities. (Reference-Title 25, § 71.21.a.5.I.A) Section V.D. of Guidance.
	<u>GP-2</u>	4. Has been done through official plan revisions (planning modules) and addenda. (Reference-Title 25, § 71.21.a.5.I.A)
		5. Identify all municipal and county planning documents adopted pursuant to the Pennsylvania Municipalities Planning Code (Act 247) including:
	<u>GP-3 to 8</u>	1. All land use plans and zoning maps which identify residential, commercial, industrial, agricultural, recreational, and open space areas. (Reference-Title 25, § 71.21.a.3.iv)
	<u>GP-8</u>	2. A comparison of proposed land use as allowed by zoning and existing sewage facility planning. (Reference-Title 25, § 71.21.a.3.iv)
	<u>GP-9</u>	3. Zoning or in the absence of zoning subdivision regulations that establish lot sizes predicated on sewage disposal methods. (Reference-Title 25, § 71.21.a.3.iv)
	<u>GP-10 to 11</u>	4. All limitations and plans related to floodplain and stormwater management and special protection areas. (Reference-Title 25, § 71.21.a.3.iv) Appendix B, Section II.F.
	<u>GP-12 to 15</u>	5. An analysis of land use planning and zoning and its consistency with protecting environmentally sensitive areas, with special attention to: (Reference-Title 25, § 71.21.a.3.iv) <ul style="list-style-type: none"> - public ground/surface water supply sources - recreational water use areas - groundwater recharge areas - industrial water use - wetlands

II. Physical and Demographic Analysis utilizing written description and mapping:

A. Base line mapping (All maps should show all current lots and structures).

	<u>GP-16</u>	1. Identification of Planning Area(s), Municipal Boundaries, Sewer Authority/ Management Agency service area boundaries. (Reference-Title 25, § 71.21.a.1.i)
	<u>Exhibit 2-7</u>	
	<u>GP-17</u>	2. Identification and Mapping of Physical Characteristics (streams, lakes, impoundments, natural conveyance channels, drainage basins in the planning area). (Reference-Title 25, § 71.21.a.1.ii)
	<u>Exhibit 2-9</u>	
	<u>GP-18 to 21</u>	3. Soils - Analysis with description by soil type and soils mapping (with any topographic limitations) showing areas suitable for conventional on-lot systems, elevated sand mounds, and areas unsuitable for on-lot systems. (Reference-Title 25, § 71.21.a.1.iii). Mapping of Prime Agricultural Soils and locally protected agricultural soils. (Reference - Title 25, § 71.21.a.5.I.K)
	<u>Exhibit 2-10 & 2-11</u>	
	<u>GP-21 to 22</u>	4. Geologic Features - Identification through analysis, mapping and their relation to existing (including areas where existing nitrate-nitrogen levels are in excess of 5 mg/l) or potential nitrate-nitrogen pollution and drinking water sources. (Reference-Title 25, § 71.21.a.1.iii)
	<u>Exhibit 2-12</u>	

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	<u>GP-22 to 23</u>	
	<u>Exhibit 2-5 & 2-9</u>	5. Topography - Showing slopes that are suitable for conventional systems; slopes that are suitable for elevated sand mounds and slopes that are unsuitable for on-lot systems. (Reference-Title 25, § 71.21.a.1.ii)
	<u>GP-23 to 24</u>	6. Potable Water Supplies - Identification through mapping, description and analysis to include available public water supply capacity and aquifer yield for groundwater supplies. (Reference-Title 25, § 71.21.a.1.vi) Section V.C. of the Guidance.
	<u>GP-25</u>	
	<u>Exhibit 2-3</u>	7. Wetlands - Identify wetlands as defined in Title 25, Chapter 105 by description, analysis and mapping. Proposed collection, conveyance and treatment facilities and lines must be located and labeled, along with the identified wetlands, on the map. (Reference-Title 25, § 71.21.a.1.v) Appendix B, Section III.
	<u>GP-26 to 29</u>	
	<u>Exhibit 2-6A</u> C	8. Population - List historical, current and future population figures and projections of the municipality. Discuss and evaluate any discrepancies between municipal, county, state (DER), and federal population projections as they relate to sewage facilities. (Reference-Title 25, § 71.21.a.1.iv)
III. Existing Sewage Facilities in the Planning Area.		
		A. Identify, map and describe municipal and nonmunicipal, individual and community sewerage systems in the planning area including:
	<u>GP-30 to 31</u>	
	<u>Exhibit 2-8</u>	1. Location, size and ownership of treatment facilities, main intercepting lines, pumping stations and force mains including their size, capacity, point of discharge. Also include the name of the receiving stream, drainage basin, and the facility's effluent discharge requirements. (Reference-Title 25, § 71.21.a.2.i.A)
	<u>GP-32 to 36</u>	
	<u>Exhibit 2-13</u>	2. A narrative and schematic diagram of the facility's basic treatment processes including the facility's NPDES permitted capacity, any remaining reserve capacity and the policy concerning the allocation of reserve capacity. (Reference-Title 25, § 71.21.a.2.i)
	<u>GP-37</u>	
		3. A description of problems with existing facilities, including existing or projected overload under Title 25, Chapter 94 (relating to municipal wasteload management) or violations of a national pollutant discharge elimination system (NPDES) permit, Clean Streams Law permit, or other permit, rule or regulation of the Department. (Reference-Title 25, § 71.21.a.2.i.B)
	<u>GP-38</u>	
		4. Details of scheduled or in-progress upgrading or expansion of treatment facilities and the anticipated completion date of the improvements. Also discuss the compatibility of the rate of growth to existing and proposed wastewater treatment facilities. (Reference-Title 25, § 71.21.a.4.i & ii)
	<u>GP-38</u>	
	<u>Appendix A</u>	5. A detailed description of operation and maintenance requirements and the status of past and present compliance with these requirements and any other requirements relating to sewage management programs. (Reference-Title 25, § 71.21.a.2.i.C)
	<u>GP-39</u>	
		6. Ultimate disposal areas, if other than stream discharge (land application) and any applicable groundwater limitations. (Reference-Title 25, § 71.21.a.4.i & ii)

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Item Required

B. Identify, map and describe areas that utilize individual and community on-lot sewage disposal and retaining tank systems in the planning area including:

GP-39

1. The type of systems in use. (Reference-Title 25, § 71.21.a.2.ii.A)

GP-40 to 42

2. A description of documented and potential public health pollution, and operational problems (including malfunctioning systems) with the systems, including violations of local ordinances, the Sewage Facilities Act, the Clean Streams Law or regulation promulgated thereunder. (Reference-Title 25, § 71.21.a.2.ii.B)

GP-42

3. A comparison of the types of on-lot sewage systems installed in an area with the types of systems which are appropriate for the area according to soil, geologic conditions, topographic limitations, sewage flows, and Title 25 Chapter 73 (relating to standards for sewage disposal facilities). (Reference-Title 25, § 71.21.a.2.ii.C)

GP-42 to 44

4. Conducting a well water survey to identify possible contamination by malfunctioning on-lot sewage disposal systems. Approximately 15% of the wells in the study area should be sampled. (Reference-Title 25, § 71.21.a.2.ii.B)

C. Identify wastewater sludge and septage generation, transport, and disposal methods as it relates to sewage facilities alternative analysis including:

GP-45

1. Location of sources of wastewater sludge or septage (Sewptic tanks, holding tanks, wastewater treatment facilities). (Reference-Title 25, § 71.71)

GP-45

2. Quantities of the types of sludges or septage generated. (Reference-Title 25, § 71.71)

GP-46

3. Present disposal methods, locations, capacities, and transportation methods. (Reference-Title 25, § 71.71)

GP-46

D. Identify, map and describe areas in the municipality where unpermitted collection and disposal systems ("wildcat" sewers, borehole disposal, etc.) are in use. (Reference-Title 25, § 71.21.a.2.i.B)

IV. Future Growth and Development

A. Delineate and describe the following through map, text and analysis:

GP-47 to 49

1. Areas with existing development or plotted subdivisions. Include the name, location, description, total number of EDU's in development, total number of EDU's currently developed, and total number of Equivalent Dwelling Units (EDUs) remaining to be developed (include time schedule for EDU's remaining to be developed). (Reference-Title 25, § 71.21.a.3.i)

GP-50 to 51

2. Land use designations established under the Pennsylvania Municipalities Planning Code (35 P.S. 10101-11202), including residential, commercial and industrial areas. (Reference-Title 25, § 71.21.a.3.ii)

GP-51 to 53

3. Future growth areas and population and EDU projections for these areas. (Reference-Title 25, § 71.21.a.3.iii)

Only	In Plan	Item Required
	<u>GP-54</u>	4. Zoning, subdivision regulations; local, county or regional comprehensive plans; and existing plans of a Commonwealth agency relating to the development, use and protection of land and water resources. (Reference-Title 25, § 71.21.a.3.iv)
		5. Sewage planning required to provide adequate wastewater treatment for areas of the municipality and related to:
	<u>GP-54 to 55</u>	a. Five-year population and growth impacts on existing and proposed wastewater collection and treatment facilities which support the need for expansions of facilities within the five-year time frame. (Reference-Title 25, § 71.21.a.3.v)
	<u>GP-55</u>	b. Ten-year population and growth impacts on existing and proposed wastewater collection and treatment facilities which support the need for expansions of facilities within the ten-year time frame. (Reference-Title 25, § 71.21.a.3.v)
V. Alternatives to Provide New or Improved Wastewater Disposal Facilities		
		A. Identify alternatives available to provide for new or improved sewage facilities for each area of need including, but not limited to: (Reference-Title 25, § 71.21.a.4)
	<u>GP-56</u>	1. Regional Wastewater Treatment Concepts. (Reference-Title 25, § 71.21.a.4)
	<u>GP-56</u>	2. The potential for extension of existing municipal or non-municipal sewage facilities to areas in need of new or improved sewage facilities. (Reference-Title 25, § 71.21.a.4.i)
		3. The potential for the continued use of existing municipal or non-municipal sewage facilities through one or more of the following: (Reference-Title 25, § 71.21.a.4.ii)
	<u>GP-57</u>	a. Repair. (Reference-Title 25, § 71.21.a.4.ii.A)
	<u>GP-57</u>	b. Upgrading. (Reference-Title 25, § 71.21.a.4.ii.B)
	<u>GP-57</u>	c. Improved operation and maintenance. (Reference-Title 25, § 71.21.a.4.ii.C)
	<u>GP-57</u>	d. Other applicable actions that will resolve or abate the identified problems. (Reference-Title 25, § 71.21.a.4.ii.D)
	<u>GP-57</u>	4. The need for new community sewage systems. (Reference-Title 25, § 71.21.a.4.iii)
	<u>GP-58 to 96</u>	5. The construction of new wastewater treatment facilities. (Reference-Title 25, § 71.21.a.4.iii)
	<u>GP-97 to 98</u>	6. Repair or replacement of collection and conveyance system components. (Reference-Title 25, § 71.21.a.4.ii.A)
	<u>GP-98</u>	7. Use of alternative methods of collection/conveyance to serve needs areas using existing wastewater treatment facilities. (Reference-Title 25, § 71.21.a.4.ii.B)

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in Plan

Items Required

8. The continual and future use of individual and community subsurface sewage disposal system alternatives based on:

GP-99

- a. Soil suitability. (Reference-Title 25, § 71.21.a.2.ii.C)

GP-99

- b. Preliminary hydrogeological evaluation. (Reference-Title 25, § 71.21.a.2.ii.C)

GP-100

- c. The establishment of a sewage management program. (Reference-Title 25, § 71.21.a.4.iv)

9. The repair, replacement or upgrading of existing malfunctioning systems in areas suitable for on-lot disposal considering: (Reference-Title 25, § 71.21.a.4)

GP-101

- a. Existing technology and sizing requirements of Title 25 Chapter 73. (Reference-Title 25, § 73.31 - 73.72)

GP-101

- b. Use of expanded absorption areas or alternating absorption areas. (Reference-Title 25, § 73.16)

GP-101

- c. Use of water conservation devices. (Reference-Title 25, § 71.73.b.2.iii)

10. The use of small flow sewage treatment facilities, land treatment alternatives, or package treatment facilities to serve individual homes or clusters of homes based on: (Reference-Title 25, § 71.21.a.4)

GP-101

- a. Discharge Requirements. (Reference-Title 25, § 71.64.d)

GP-101

- b. Soil Suitability. (Reference-Title 25, § 71.64.c.1)

GP-101

- c. Preliminary Hydrogeologic Evaluation. (Reference-Title 25, § 71.64.c.3)

GP-101

- d. Agency or other controls over operation and maintenance requirements. (Reference-Title 25, § 71.64.d)

11. The use of retaining tank alternatives including: (Reference-Title 25, § 71.21.a.4)

GP-102 to 103

- a. Commercial, residential and industrial use. (Reference-Title 25, § 71.63.e)

GP-102 to 103

- b. Designated conveyance facilities (pumper trucks). (Reference-Title 25, § 71.63.b.2)

GP-102 to 103

- c. Designated treatment facilities or disposal site. (Reference-Title 25, § 71.63.b.2)

GP-102 to 103

- d. Implementation of a retaining tank ordinance by the municipality. (Reference-Title 25, § 71.63.c.3)

GP-102 to 103

- e. Financial guarantees when retaining tanks are used as an interim sewage disposal measure. (Reference-Title 25, § 71.63.c.2)

GP-102 to 103

- f. Temporary or permanent use.

Map	in Plan	Item Required
		12. A no-action alternative which includes both short-term and long-term impacts on: (Reference-Title 25, § 71.21.a.4)
	<u>GP-103 to 104</u>	a. Water Quality/Public Health. (Reference-Title 25, § 71.21.a.4)
	<u>GP-103 to 104</u>	b. Growth potential (residential, commercial, industrial). (Reference-Title 25, § 71.21.a.4)
	<u>GP-103 to 104</u>	c. Community economic conditions. (Reference-Title 25, § 71.21.a.4)
	<u>GP-103 to 104</u>	d. Recreational opportunities. (Reference-Title 25, § 71.21.a.4)
	<u>GP-103 to 104</u>	e. Drinking water sources. (Reference-Title 25, § 71.21.a.4)
	<u>GP-103 to 104</u>	f. Other environmental concerns. (Reference-Title 25, § 71.21.a.4)
		13. Discuss the need for and implementation of a sewage management program to assure the future operation and maintenance of existing and proposed sewage facilities through:
	<u>GP-105 to 106</u>	a. Municipal ownership or other management control over the operation and maintenance of individual on-lot sewage disposal systems, small flow treatment facilities, or other non-municipal treatment facilities. (Reference-Title 25, § 71.21.a.4.iv)
	<u>GP-106</u>	b. Requiring scheduled inspection of on-lot sewage disposal systems. (Reference-Title 25, § 71.73.b.1)
	<u>GP-106 to 107</u>	c. Requiring scheduled maintenance of septic and aerobic treatment tanks and associated system components. (Reference-Title 25, § 71.73.b.2)
	<u>GP-107</u>	d. Aggressive enforcement of ordinances which require operation and maintenance and prohibit malfunctioning systems. (Reference-Title 25, § 71.73.b.5)
	<u>GP-108</u>	e. Repair, replacement or upgrading of malfunctioning on-lot sewage systems. (Reference-Title 25, § 71.21.a.4.iv)
	<u>GP-108</u>	f. Establishment of joint municipal sewage management programs. (Reference-Title 25, § 71.73.b.3)
	<u>GP-108</u>	g. Reduction of organic or hydraulic loading to existing wastewater treatment facilities. (Reference-Title 25, § 71.71)
	<u>GP-108</u>	h. Requirements for bonding, escrow accounts, management agencies or associations to assure proper operation and maintenance for non-municipal facilities. (Reference-Title 25, § 71.71)
		14. Non-structural comprehensive planning alternatives that can be undertaken to assist in meeting existing and future sewage disposal needs including: (Reference-Title 25, § 71.21.a.4)
	<u>GP-109 to 110</u>	a. Modification of existing comprehensive plans involving: <ul style="list-style-type: none"> 1. Land use designations. (Reference-Title 25, § 71.21.a.4)

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Item Required

GP-109 to 110

2. Densities. (Reference-Title 25, § 71.21.a.4)

GP-109 to 110

3. Municipal ordinances and regulations. (Reference-Title 25, § 71.21.a.4)

GP-109 to 110

4. Improved enforcement. (Reference-Title 25, § 71.21.a.4)

GP-109 to 110

6. Protection of drinking water sources. (Reference-Title 25, § 71.21.a.4)

GP-109 to 110

b. Need for a comprehensive plan to assist in producing sound economic and consistent land development. (Reference-Title 25, § 71.21.a.4)

GP-109 to 110

c. Alternatives for creating or changing municipal subdivision regulations to assure long-term use of on-site sewage disposal. (Reference-Title 25, § 71.21.a.4)

GP-109 to 110

d. Evaluation of existing local agency programs and the need for technical or administrative training. (Reference-Title 25, § 71.21.a.4)

VI. The Evaluation of Alternatives

A. Each technically feasible alternative identified in Section V of this check-list must be evaluated for consistency with respect to the following: (Reference-Title 25, § 71.21.a.5.i)

GP-111

1. Applicable plans developed and approved under Sections 4 and 5 of the Clean Streams Law or Section 208 of the Clean Water Act (33 U.S.C.A. 1288). (Reference-Title 25, § 71.21.a.5.i.A) Appendix B, Section II.A.

GP-111

2. Municipal wasteload management plans developed under PA Code, Title 25, Chapter 94. (Reference-Title 25, § 71.21.a.5.i.B) The municipality's recent Wasteload Management (Chapter 94) Reports should be examined to determine if the proposed alternative is consistent with the recommendations and findings of the report. (Appendix B, Section II.B.

GP-111

3. Plans developed under Title II of the Clean Water Act (33 U.S.C.A. 1281-1299) or Titles II and VI of the Water Quality Act of 1987 (33 U.S.C.A. 1251-1376). (Reference-Title 25, § 71.21.a.5.i.C) Appendix B, Section II.E.

GP-112

4. Comprehensive plans developed under the Pennsylvania Municipalities Planning Code. (Reference-Title 25, § 71.21.a.5.i.D) The municipality's comprehensive plan must be examined to assure that the proposed wastewater disposal alternative is consistent with land use and all other requirements stated in the comprehensive plan. Appendix B, Section II, D.

GP-112

5. Antidegradation requirements as contained in PA Code, Title 25, Chapters 93, 95 and 102 (relating to water quality standards, wastewater treatment requirements and erosion control) and the Clean Water Act. (Reference-Title 25, § 71.21.a.5.i.E) Appendix B, Section II, F.

GP-112

6. State water plans developed under the Water Resources Planning Act (42 U.S.C.A. 1962-1962 d-18). (Reference-Title 25, § 71.21.a.5.i.F) Appendix B, Section II, C.

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	<u>GP-112</u>	7. Pennsylvania Prime Agricultural Land Policy contained in Title 4 of the Pennsylvania Code, Chapter 7, Subchapter W. Provide narrative on local municipal policy and an overlay map on prime agricultural soils. (Reference-Title 25, § 71.21.a.5.i.G) Appendix B Section II.G.
	<u>GP-113</u>	8. County Stormwater Management Plans approved by the Department under the Storm Water Management Act (32 P.S. 680.1-680.17). (Reference-Title 25, § 71.21.a.5.i.H) Conflicts created by the implementation of the proposed wastewater alternative and the existing recommendations for the management of stormwater in the County Stormwater Management Plan must be evaluated and mitigated. If no plan exists, no conflict exists. Appendix B, Section II.H.
	<u>GP-113</u>	9. Wetland Protection under PA Code, Title 25, Chapter 105. Map wetland areas using Federal National Wetlands Inventory Mapping and Soils Mapping. (Reference-Title 25, § 71.21.a.5.i.I) Identify and provide mitigative measures for any encroachments on wetlands from the construction or operation of any wastewater facilities proposed by the alternative. Appendix B, Section II.I.
	<u>GP-113</u>	10. Protection of rare, endangered or threatened plant and animal species as identified by the Pennsylvania National Diversity Inventory (PNDI). (Reference-Title 25, § 71.21.a.5.i.J) Provide the Department with a copy of the completed Request For PNDI Search document. Also provide a copy of the response letter from the Department's Bureau of Forestry regarding the findings of the PNDI search. Appendix II. J.
	<u>GP-114</u>	11. Historical and Archaeological Resource Protection under P.C.S. Title 37, Section 507 relating to cooperation by public officials with the Pennsylvania Historical and Museum Commission. (Reference-Title 25, § 71.21.a.5.i.K) Provide the Department with a completed copy of Form "A" and its attachments requesting the Bureau of Historic Preservation (BHP) to provide a listing of known historical sites and potential impacts on known archaeological and historical sites. Also provide a copy of the response letter from the BHP. Appendix B, Section II. K.
	<u>GP-115</u>	B. Provide for the resolution of any inconsistencies in any of the points identified in Section VI.A. of this checklist by submitting written documentation that the appropriate agency has received, reviewed, and concurred with the method proposed to resolve identified inconsistencies. (Reference-Title 25, § 71.21.a.5.ii) Appendix B
	<u>GP-115</u>	C. Evaluate each alternative identified in Section V of this checklist with respect to applicable water quality standards, effluent limitations or other technical, legislative or legal requirements. (Reference-Title 25, § 71.21.a.5.iii)
	<u>GP-115 to 117</u>	D. Provide cost estimates using present worth analysis for construction, financing, ongoing administration, operation and maintenance and user fees for each alternative identified in Section V of this checklist. Estimates shall be limited to areas identified in the plan as needing improved sewage facilities within 5 years from the date of plan submission. (Reference-Title 25, § 71.21.a.5.iv)
	<u>GP-118 to 124</u>	E. Provide an analysis of the funding methods available to finance each of the proposed alternatives evaluated in Section V of this checklist. Also provide documentation to demonstrate which alternative and financing scheme combination is the most cost-effective; and a contingency financial plan to be used if the preferred method of financing cannot be implemented. The funding analysis shall be limited to areas identified in the plan as needing improved sewage facilities within five years from the date of the plan submission. (Reference-Title 25, § 71.21.a.5.v)

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F. Analyze the ability of the municipality to implement each alternative proposed in Section V of this report including: (Reference-Title 25, § 71.21.a.5.vi)

GP-125

1. The activities necessary to abate critical public health hazards pending completion of sewage facilities or sewage management programs. (Reference-Title 25, § 71.21.a.5.vi.A)

GP-125

2. The phased development of the facilities or sewage management program. (Reference-Title 25, § 71.21.a.5.vi.B)

GP-125

a. Provide time schedules for implementing each phase. (Reference-Title 25, § 71.21.a.5.vi.C)

GP-125

3. The administrative organization and legal authority necessary for plan implementation. (Reference-Title 25, § 71.21.a.5.vi.D)

VII. Institutional Evaluation

A. Provide an analysis of all existing wastewater treatment authorities, their past actions and present performance including:

GP-126

1. Financial & debt status. (Reference-Title 25, § 71.61.d.2.)

GP-126

2. Available staff and administrative resources. (Reference-Title 25, § 71.61.d.2.)

3. Existing legal authority to:

GP-127

a. Implement wastewater planning recommendations. (Reference-Title 25, § 71.61.d.2.)

GP-127

b. Implement system-wide operation and maintenance activities. (Reference-Title 25, § 71.61.d.2.)

GP-127

c. Set user fees and take purchasing actions. (Reference-Title 25, § 71.61.d.2.)

GP-127

d. Take actions against adopted ordinance violators. (Reference-Title 25, § 71.61.d.2.)

GP-127

e. Negotiate agreements with other parties. (Reference-Title 25, § 71.61.d.2.)

GP-127

f. Raise capital for construction and operation and maintenance of facilities. (Reference-Title 25, § 71.61.d.2.)

B. Provide an analysis and description of the various institutional alternatives necessary to implement the proposed alternative including:

GP-128

1. Need for new authorities. (Reference-Title 25, § 71.61.d.2.)

GP-128

2. Functions of existing and proposed organizations (sewer authorities, etc.). (Reference-Title 25, § 71.61.d.2.)

GP-128

3. Cost of administration, implementability, and the capability of the authority to react to future needs. (Reference-Title 25, § 71.61.d.2.)

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- C. Describe all necessary administrative and legal activities to be completed and adopted to ensure the implementation of the recommended alternative including:

GP-129

1. All legal authorities of incorporation. (Reference-Title 25, § 71.61.d.2.)

GP-129

2. All required ordinances, regulations, standards, and inter-municipal agreements. (Reference-Title 25, § 71.61.d.2.)

GP-129

3. Activities to provide rights-of-way, easements, and land transfers. (Reference-Title 25, § 71.61.d.2.)

GP-129

4. Other municipal sewage facilities plan adoptions. (Include the development of Items 1-4 on the project's schedule of implementation). (Reference-Title 25, § 71.61.d.2.)

GP-129

5. Any other legal documents. (Reference-Title 25, § 71.61.d.2.)

GP-130

- D. Identify the chosen institutional alternative for implementing the chosen wastewater disposal alternative. Provide justification for choosing the specific alternative. (Reference-Title 25, § 71.61.d.2.)

VIII. Selected Wastewater Treatment & Institutional Alternatives

- A. Select one technical wastewater disposal alternative which best meets the wastewater treatment needs of each area of the municipality studied. Justify the choices by providing documentation which shows that they are the best alternative(s) based on:

GP-131

1. Wastewater disposal needs. (Reference-Title 25, § 71.21.a.6.)

GP-131

2. Technical and administrative needs. (Reference-Title 25, § 71.21.a.6.)

GP-131

3. Cost-effectiveness. (Reference-Title 25, § 71.21.a.6.)

GP-131

4. Management and administration systems available. (Reference-Title 25, § 71.21.a.6.)

GP-131 to 132

5. Financing methods available. (Reference-Title 25, § 71.21.a.6.)

GP-132

6. 5 and 10 year planned growth areas. (Reference-Title 25, § 71.21.a.6.)

GP-132

7. Environmental soundness and compliance with natural resource planning and preservation programs. (Reference-Title 25, § 71.21.a.6.)

GP-132

- B. Describe the capital financing plan chosen to implement the selected alternative(s).

GLACE ASSOCIATES, INC.

CONSULTING ENGINEERS
3705 Trindle Road
Camp Hill, PA 17011

717-731-1579 • FAX 717-731-1348

January 23, 1997

File: 89036.A

Commonwealth of Pennsylvania
Department of Environmental Protection
Bureau of Water Quality Management
Southeastern Regional Office
Lee Park, Suite 6010
555 North Lane
Conshohocken, Pennsylvania 19428-2233

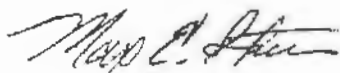
Dear Sir or Madam:

RE: West Goshen Township, Chester County
Act 537 - Official Wastewater Facilities Plan

On behalf of the West Goshen Township Board of Supervisors, please find enclosed for your review and records four (4) copies of the above referenced planning document. Please complete the necessary reviews and routing process followed by your agency. Signed and sealed adoption resolutions enacted by the Board of Supervisors are included in the planning document.

If you have any questions or comments concerning the report or any other item, please do not hesitate to contact this office.

Very truly yours,



Max E. Stoner, P.E.
President

Enclosures: As Noted

cc: West Goshen Township Board of Supervisors
West Goshen Township Sewer Authority
John Scott, WGT Plant Superintendent
Ross Unruh, Solicitor
East Goshen Township Board of Supervisors
Westtown Township Board of Supervisors
West Whiteland Township Board of Supervisors

LIST OF MUNICIPAL OFFICIALS

WEST GOSHEN TOWNSHIP OFFICIALS

Edward G. Meakim, Jr., Chairman
Raymond E. Halverson, Vice Chairman
Dr. Robert White, Member
Sharon Lynn, Township Manager
Nancy D. Rodgers, Administrative Supervisor
Ronald C. Nagle, Solicitor
Kenneth E. Lawrence, Township Engineer

WEST GOSHEN TOWNSHIP PLANNING COMMISSION

Robert B. Little, Chairman
Paul D. Spiegel, Vice Chairman
Dean K. Diehl, Jr.
Harvey T. Corbett
Jeffery Laudenslager
James J. O'Brien
Nancy B. Higgins, Recording Secretary
Michael Bannon (Alternate)

ZONING HEARING BOARD

Harry E. Johnson, Chairman
Joseph DeFelippes, Vice Chairman
Bertsil B. Baker, Member
Robert Lambert (Alternate)
Ronald M. Agulnick, Solicitor

WEST GOSHEN SEWER AUTHORITY

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James F. McLear, Jr., Vice Chairman
John L. Windle, Treasurer
Lewis H. Reid, Secretary
Walter E. Hoover, Assistant Secretary
Paul D. Seigel (Alternate)
John M. Scott, Operations Manager
Ross A. Unruh, Solicitor
Glace Associates, Inc., Authority Engineers

2. PLAN SUMMARY

A. Identify the proposed service areas and major problems evaluated in the Plan.

The Act 537 Official Wastewater Facilities Plan for West Goshen Township is summarized in this chapter. Presented are the findings obtained during the planning process and resultant recommendations proposed based on the many considerations examined.

Planning for municipal wastewater facilities is an increasingly difficult task, because of limited funding sources and the resultant enormous burden placed on the local population where municipal facilities may be so vitally needed. Therefore, it is very important for municipal officials and their agents to provide a valid and implementable wastewater facilities plan which not only provides for the existing needs of the community, but just as importantly, provides the necessary direction for new development such that wastewater disposal does not result in future problems.

This plan designates potential service areas for future growth and provides appropriate service area and total population projections. There is an extensive municipal sewerage system serving the majority of West Goshen Township, with approximately 200 residential units relying on individual on-lot disposal systems, which should be adequate in the future if properly maintained.

The following TABLE A is a display of the past and future projected populations of West Goshen Township.

TABLE A

WEST GOSHEN TOWNSHIP POPULATIONS CHESTER COUNTY, PENNSYLVANIA

SOURCE	1980	1990	2000	2010	2020	2030
PA State Water Plan, 1992	16,164	18,082	20,002	21,083	21,268	21,566
Chester County Planning Commission, 1992	16,164	18,082	19,350	19,450	19,9500	-----

Assuming that all existing approved subdivisions reach their ultimate build out in ten (10) years and other proposed developments at a declining rate of growth, the following TABLE B is proposed.

TABLE B

**WASTEWATER FACILITIES PLAN'S PROPOSED POPULATION FIGURES
WEST GOSHEN TOWNSHIP, CHESTER COUNTY, PENNSYLVANIA**

Existing Residential Units Utilizing OLDS	200
Existing Sewered Units - EDU's	7,314
Existing Residential Units Utilizing Private Systems	0
Current Residential Units	6,630
Current Population	19,500
Persons Per Residential Unit	2.94
Future Residential Units Utilizing OLDS	25
Future Sewered Units	800
Future Residential Units Utilizing Private Systems	0
Total Future Homes	825
TOTAL PRESENT AND FUTURE RESIDENTIAL UNITS - YEAR 2005	7,455
WASTEWATER PLAN PROJECTED 2000 POPULATION	
State Water Plan's 2000 Figure	20,002

The above projected 2000 population calculated from present and future residences is very similar to that of the State Water Plan; therefore, the State Water Plan projection will be the basis on which this report is planned.

The plan's primary need is to address future expansion of the regional wastewater treatment facility. Any large development or existing homes which may have been in need of public sewers are being or have been connected. The connections of existing residences in the contributing townships and the growth in the Township has created a potential for hydraulic overloading. This potential overloading has been discussed in the Annual Chapter 94 - Municipal Wasteload Management Reports.

Existing and projected year 2000 wastewater flows are shown in TABLE C below.

TABLE C

**PRESENT AND PROJECTED WASTEWATER FLOWS
WEST GOSHEN TOWNSHIP, CHESTER COUNTY, PENNSYLVANIA**

Allocated Capacity at Plant-West Goshen.	2,850,000 gpd
Allocated Capacity at Plant-East Goshen.	1,000,000 gpd
Allocated Capacity at Plant-West Whiteland.	420,000 gpd
Allocated Capacity at Plant-Westtown.	<u>230,000 gpd</u>
 Total Treatment Plant Capacity.	 4,500,000 gpd
 Existing Sewer Flow-West Goshen.	 1,962,000 gpd
Existing Sewer Flow-East Goshen.	867,000 gpd
Existing Sewer Flow-West Whiteland.	390,000 gpd
Existing Sewer Flow-Westtown.	<u>225,000 gpd</u>
 * Existing Total Flow To Plant.	 3,444,000 gpd
 Year 2000 Projected Sewer Flow-West Goshen.	 2,292,000 gpd
Year 2000 Projected Sewer Flow-East Goshen.	952,000 gpd
Year 2000 Projected Sewer Flow-West Whiteland.	570,000 gpd
Year 2000 Projected Sewer Flow-Westtown.	<u>225,000 gpd</u>
 ** Year 2000 Projected Flow to Plant	 4,124,000 gpd
 Existing On-lot Flow-West Goshen.	 50,000 gpd
Future On-lot Flow-West Goshen.	30,000 gpd
 Existing Private System Flow-West Goshen.	 0 gpd
Future Private System Flow-West Goshen.	0 gpd

* Source - 1995 Chapter 94

** Estimates with no plant expansion, includes 150,000 gpd for temporary allocation to and malfunction systems in existing developments.

The 1995 Chapter 94 - Wasteload Management Report indicates the need to initiate a mandatory sewage management program, as well as the need to provide additional capacity for proposed extensions to the sewerage system. There is a particular need for additional capacity for West Whiteland and Westtown Townships as they are rapidly approaching their allocated capacities of 0.42 and 0.23 mgd, respectively.

To address any unforeseen problems with sewage treatment or disposal, West Goshen Township will follow the recommendations below:

1. **Will** allow individual on-lot disposal systems for new or existing development if lot sizes are adequate and all conditions are satisfactory,
2. **Will not** allow community on-lot disposal systems for new developments,
3. **Will** allow community on-lot disposal systems only for existing clusters of homes in remote areas that have been experiencing problems if no other alternatives are available,
4. **Will** consider the use of retaining tanks for new or existing land development only for those areas which can be served by municipal facilities within a reasonable period of time (3 years) or in extreme emergencies, in accordance with the Holding Tank Ordinance.
5. **Will** allow the use of low pressure sanitary sewer (to be maintained by the Authority) and individual grinder pumps (to be purchased and maintained by the property owner), for new development,
6. **Will not** allow the use of package treatment plants for new developments.
7. **Will not** allow the use of package treatment plants for existing development experiencing numerous on-lot disposal system malfunctions and/or poor well water quality.

B. Identify the alternative(s) chosen to solve the problems and serve the areas of need identified in the Plan. Also, include any institutional arrangements necessary to implement the chosen alternative(s).

The problem in the West Goshen Township sewerage system is the need to expand the treatment facility to handle the demands of growth on the system. Although the Township has enacted steps to reduce the potential for future hydraulic and organic overloads at the treatment plant, as indicated by the Chapter 94 Wasteload Management Report, the ultimate need is the expansion of the existing treatment facility.

The alternatives evaluated for West Goshen included upgrade and expansion of the existing facility and construction of a second treatment facility at another location in the northwest corner of the Township or surrounding area. The chosen alternative was to upgrade and expand the existing treatment plant to a total of 6.0 mgd utilizing the same process as they currently utilize. This is an increase of 1.5 mgd which should serve the additional ultimate sewage treatment plant needs for West Goshen Township and the requested amounts for the next 10 years for the existing contributing municipalities: East Goshen, West Whiteland and Westtown Townships. The Township and Authority are proceeding with a 1.5 mgd expansion regardless of the ability or inability of the other municipalities to pay for the capacity.

The necessary institutional arrangements will initially involve a myriad of agencies, including the West Goshen Township Board of Supervisors and the Planning Commission, the Chester County Planning Commission, Chester County Health Department, West Goshen Sewer Authority, the contributing municipalities and the Pennsylvania Department of Environmental Protection. These groups will be initially involved in the planning phase of the overall project.

Probably the most important part of the initial or planning phase of providing sewerage facilities is the establishment of service areas and corresponding populations. This has been done with the preparation and compilation of the Act 537 Plan. However, the Plan has gone on to recommend techniques in meeting the existing and future needs of West Goshen Township for safe and effective wastewater disposal.

Following delineation and complete agreement concerning the sewer service areas and their respective populations and anticipated sewage flows, it is suggested that the primary responsibility in providing the necessary facilities lies with West Goshen Township and the West Goshen Sewer Authority. The Authority typically finances any major improvements to the sewerage system and has the framework in place to carry out the necessary activities to provide municipal sewerage service. The Township leases the facilities and operates the system for the Authority.

Naturally, prospective developers should follow the usual local and county government format to create a new subdivision. However, they should also contact the Authority concerning available conveyance and treatment capacity prior to pursuing any serious ideas of developing extensive tracts of land which would utilize municipal sewerage services. The developer is responsible for the design and financing of all facilities to serve the proposed development, subject to provisions of Act 203 (tapping fee legislation).

The continued use of on-lot wastewater treatment and disposal systems is anticipated in most areas of the Township not presently served by municipal sewerage facilities. Although there is no apparent significant problem with on-lot wastewater disposal facilities, it is recommended that an effort be made by the municipal officials to implement a mandatory inspection/maintenance program and offer some sort of educational effort to help residents better understand their on-lot disposal systems (OLDS), how they work, and what can be done to aid in the continued safe and adequate performance of these systems. This educational effort should include water conservation practices, and restrictions on what can be discharged to an on-lot disposal system. Some information can be found in APPENDIX E of the Attachments Section.

C. Include the cost of implementing the proposed alternative (including the user fees) and the proposed funding method to be used.

The estimated cost to upgrade and expand the existing wastewater treatment facility is \$8,525,000.00. The capital cost per gallon is approximately \$6.00. The capital cost is distributed to each contributing township according to the capacity they have reserved in the expansion. Each municipality sets their own user fees and tapping fees, dependent upon the total costs of the debt service and operation of their systems. The anticipated annual user fee

for West Goshen Township customers has been estimated to range from \$196.00 to \$220.00, depending on the amount of reserves utilized, interest rates, and term of the loan secured, etc. This has assumed that the cost would be spread out among the existing customer base and new customers as they connect to the system. This also assumes that West Goshen will retain 800,000 gpd out of the total expanded capacity of 1,500,000 gpd with the other contributing municipalities picking up the other 700,000 gpd pursuant to their projected 10 year needs.

D. Include the municipal commitment necessary to implement the Plan.

A Resolution of Municipal Adoption has been included on pages PS-10 and PS-11 of this document to be used as the format for the West Goshen Township Board of Supervisors to adopt the Act 537 Official Wastewater Facilities Plan. In conjunction with this adoption resolution it will be necessary for the Township to secure commitments from the West Goshen Sewer Authority regarding securing available sewer capacity which will allow the anticipated growth to occur.

As part of the commitment to implement this Act 537 Plan, the West Goshen Township Board of Supervisors wants to stress the position that each contributing municipality and new development should "pay its own way" and provide for the system infrastructure that will be necessary to serve not only that new development but also provide adequate capacities for existing non-serviced areas that could flow through the collection system servicing the new development. Copies of the existing intermunicipal agreements are in APPENDIX J. Meeting have been held and new intermunicipal agreements are being reviewed by West Goshen Township to send to the contributing municipalities. The new intermunicipal agreements do not need to be in place prior to the adoption of this plan as the Township and Authority are going to proceed with constructing the first phase of the expansion (1.5 mgd) which is the next normal incremental expansion of the treatment facility.

E. Provide a schedule of implementation for the project which identifies the major milestones with dates necessary to accomplish the project of operational status. Other milestones in the project implementation schedule should be indicated as occurring a finite number of days from the major milestone.

The following is a listing of the major milestones to accomplish the alternative chosen which is the upgrade and expansion of the existing wastewater facility. The project needs to receive planning approval from the Department of Environmental Protection. The planning approvals should be at least in the final stages of review before other program groups within the Department begin their review of permit applications:

<u>Task #</u>	<u>Description of Task</u>	<u>Completion Date</u>
1.	Act 537 Planning Tentative Approval by DEP	May 1997 - Starting Point
2.	Submit NPDES Part 1 Permit Application	May 1997 - Within 30 days of Task 1
3.	DEP Review/Approval of NPDES Permit Applic.	October 1997- 120 days from Task 2
4.	Prepare Preliminary Design of Treatment Facility	May 1996- 60 days from Plan Submission
5.	Prepare Part 2 Permit Application & Design	October 1997 - 120 days from Task 2
6.	DEP Review and Approval of Part 2	February 1998 - 120 days from Task 3
7.	Preliminary Financing	December 1997 - 60 days from Task 5
8.	Obtain Bids, Final Financing, Start Construction	April 1998 90 days from Task 6
9.	Initiate Start up of New Facility	July 1999 - 240 days from Task 8
10.	Start Rehab of Existing Facility	September 1999 -270 days from Task 8
11.	Initiate Operations of Rehabbed Facilities	May 2000 - 210 days from Task 10

F. Include dates of the future Initiation of Feasibility Evaluations in the project's implementation schedule for areas proposing completion of sewage facilities for planning periods in excess of five years.

There are no additional feasibility studies required as part of this Plan.

It should be remembered that, although certain areas are being designated for municipal sewerage service, it is not expected that all portions of these areas will be developed within the prescribed time period. The areas recommended to receive sewer service within 5 years are areas that have already been proposed for development. Also, many of the areas estimated to be sewered within 5 to 20 years were designed to alleviate wastewater problems of existing improved properties if the need should ever arise.

These areas are shown in EXHIBIT 3-1. It is practically impossible to indicate an exact time schedule in which these projects are to occur since they all depend upon available financing and possible other Authority projects and the effect of private development.

For new on-lot disposal systems, if any, there will be requirements for the developer(s) to conduct initial groundwater testing in addition to what has been done for this Plan and, possibly, a follow-up extensive hydrogeologic study. This study would be undertaken to determine to what extent the proposed development(s) would contribute to the existing nitrate-nitrogen loading. From this estimation of conditions a determination of acceptable lot sizes or subdivision population density can be made.

As quoted from DEP Chapter 71, Section 71.62 (c)(2),

- (2) A preliminary hydrogeologic evaluation is required when the use of subsurface soil absorption areas is proposed and one of the following exists:
 - (i) A large volume on-lot sewage disposal system will be used.
 - (ii) A subdivision of more than 50 equivalent dwelling units with a density of more than one lot including equivalent dwelling units per acre is proposed.

- (iii) The Department has documented that the quality of water supplies within 1/4 mile of the proposed site exceeds five parts per million (ppm) nitrate-nitrogen.*
- (iv) The Department has determined that known geological conditions for the proposed site may contribute to the potential for groundwater pollution from the systems.

* Note: Mini-modules can no longer be used in areas with any of the above conditions, and since Component I does not require a hydrogeologic study, it can only be used in areas where the nitrate nitrogen levels are less than 5.0 ppm.

With consideration being given to the creation of a Township wide on-lot management program, it is necessary to include a schedule by which an on-lot management ordinance will be developed. The Township could begin the program by providing public education, followed by an On-Lot Management Ordinance requiring the pumping out of all septic tanks every three to five years, with periodic audits of the proofs of pump-out, to be maintained by the resident. This concept is further explained in a later section of the report.

3. Original, signed and sealed Resolution of Adoption the Municipality which contains at a minimum, alternatives chosen and a commitment to implement plan as stated in implementation schedule.

RESOLUTION NO. 97-_____

**A RESOLUTION TO ADOPT
THE OFFICIAL WASTEWATER FACILITIES PLAN,
JANUARY , 1997
FOR WEST GOSHEN TOWNSHIP
CHESTER COUNTY, PENNSYLVANIA**

WHEREAS, the "Sewage Facilities Act" of the Commonwealth of Pennsylvania requires each municipality to prepare and periodically revise an "Official Wastewater Facilities Plan" in accordance with Chapter 71 of the Rules and Regulations of the Department of Environmental Protection; and

WHEREAS, the West Goshen Township Board of Supervisors recognizes this requirement and desires to provide the necessary planning for safe and effective wastewater treatment and disposal; and

WHEREAS, the West Goshen Township Board of Supervisors has directed the necessary updating of the "Official Wastewater Facilities Plan" to be undertaken; and

WHEREAS, Glace Associates, Inc., was selected as the consultant to assist the Board of Supervisors of the Township in the preparation of the Official Wastewater Facilities Plan; and

WHEREAS, pursuant to the regulations of the Pennsylvania Department of Environmental Protection (the "Department"), the Board of Supervisors advertised the preparation of the proposed Official Wastewater Facilities Plan and requested public comments on such plan on June 12 and June 19, 1996; and

WHEREAS, the Township provided copies of the proposed Official Wastewater Facilities Plan to the Chester County Planning Commission and the West Goshen Township Planning Commission for their review in accordance with the regulations of the Department; and

WHEREAS, the Township provided copies of the proposed Official Wastewater Facilities Plan to the three current contributing municipalities: East Goshen Township, Westtown Township and West Whiteland Township for their review and comments; and

WHEREAS, the Board of Supervisors held a special public meeting to conduct a public hearing on the proposed Official Wastewater Facilities Plan on June 27, 1996; and

WHEREAS, the "Official Plan" has been completed; and

WHEREAS, the Board of Supervisors of the Township desires to adopt the proposed Official Wastewater Facilities Plan as the Official Wastewater Facilities Plan for the Township in accordance with the provisions and requirements of the Pennsylvania Sewage Facilities Act and the regulations of the Department.

NOW, THEREFORE, BE IT RESOLVED by the Board of Supervisors of West Goshen Township, Chester County, Pennsylvania as follows:

Section 1. The Board of Supervisors adopts the official sewage facilities plan entitled "Act 537 Official Wastewater Facilities Plan, January , 1997", hereinafter referred to as the "Plan", together with all revisions thereto, prepared by Glace Associates, Inc., as the Official Sewage Facilities Plan for the Township in accordance with the Pennsylvania Sewage Facilities Act and the regulations of the Department.

Section 2. The Plan as adopted by the Board of Supervisors shall include the following chapters and all textual matter, tables, exhibits, attachments, and appendices, contained therein and appended thereto:

- I. Plan Summary
- II. Background Information
- III. Alternative Evaluation
- IV. Implementation Evaluation
- V. Exhibits
- VI. Attachments

Section 3. The Board of Supervisors adopts the alternatives set forth in the Plan as the alternatives of choice which best serve the needs of the Township and which shall be implemented by the Township upon approval of the Plan by the Department in accordance with the implementation schedule set forth in the Plan. These options include possible future sewer service to areas of need and the promotion of the safe and effective use of on-lot disposal systems in areas not included in the sewer service area.

Section 4. The Chester County Master Sewage Facilities Plan adopted in 1970, together with all amendments thereto, shall be repealed for West Goshen Township upon approval of the Plan by the Department.

Section 5. This resolution shall become effective and be in force immediately.

DULY ADOPTED this _____ day of January, 1997, by the Board of Supervisors of West Goshen Township, Chester County, Pennsylvania, in lawful session duly assembled.

WEST GOSHEN TOWNSHIP BOARD OF SUPERVISORS

BY: _____
Chairperson

BY: _____
Vice Chairperson

BY: _____
Member

I, the undersigned, Secretary/Treasurer of West Goshen Township, certify the foregoing is a true and correct copy of a Resolution which duly was adopted by affirmative vote of the majority of the members of the Board of Supervisors of the Township at a meeting of said Board of Supervisors duly convened and held according to law, at which meeting of quorum was present; that such Resolution duly has been recorded in the minutes of the Board of Supervisors of the Township; and the said Resolution is in full force and effect, without amendment, alteration or repeal, as of the date of the Certificate.

IN WITNESS WHEREOF, I set my hand and affix the official seal of the Township of West Goshen, this _____ day of January, 1997.

Secretary/Treasurer

(SEAL)

4. Evidence that the municipality has requested, reviewed, and considered comments by the appropriate officials; planning agencies of the municipality; planning agencies of the county; planning agencies of area wide jurisdiction (where applicable), and existing county and joint county departments of health.

See Following

5. Proof of Public Notice which documents proposed plan adoption, plan summary, and establishment of a 30 day comment period.

See Following

Proof of Publication of Notice in Daily Local News

Under Newspaper Advertising Act No. 587, Approved May 16, 1929

State of Pennsylvania }
County of Chester } ss:

No. _____ Term. 19 _____

Donna L. Downing-Seiter, Legal Advertising Rep.

of the Daily Local News Company, a corporation, of the County and state aforesaid, being duly affirmed, deposes and says that the Daily Local News, a newspaper of general circulation, published at 250 N. Bradford Ave., West Chester, Pa., County and State aforesaid, was established November 19, 1872, and Incorporated December 11, 1911, since which date the Daily Local News has been regularly issued in said county, and that the printed notice or publication attached hereto is exactly the same as printed and published in the regular editions and issues of the said Daily Local News on the following dates viz _____

June 12 and 19

A.D. 19 96

Affiant further deposes that he/she is the proper person duly authorized by the Daily Local News Company, a corporation, publishers of said Daily Local News, a newspaper of general circulation, to verify the foregoing statement under oath, and that affiant is not interested in the subject matter of the aforesaid notice or advertisement, and that all allegations in the foregoing statements as to time, place and character of publication are true.

Donna L. Downing-Seiter

affirmed to and subscribed before me this 19th
day of June

19 96

Virginia Martin
Notary Seal
Virginia Martin, Notary Public
East Bradford Twp., Chester County
My Commission Expires Oct. 18, 1997

My Commission Expires:

Statement of Advertising Costs

West Goshen Township

1025 Pacific Pike

West Chester, PA 19380

To DAILY LOCAL NEWS COMPANY, Dr.

For publishing the notice or publication attached

hereto on the above stated dates\$

Probating same\$

Total\$

COPY OF NOTICE OR PUBLICATION

NOTICE

A public meeting will be held in the meeting room of the WEST GOSHEN TOWNSHIP Municipal Building, 1025 Pacific Pike, West Chester, PA on Thursday, June 27, 1996 at 7:00 p.m. for the purposes of reviewing the WEST GOSHEN TOWNSHIP OFFICIAL WASTEWATER FACILITIES PLAN, and to receive any public input regarding the plan.

The OFFICIAL WASTEWATER FACILITIES PLAN, mandated by the Pennsylvania Sewage Facilities Act (537), which requires planning to provide for safe and effective wastewater disposal, contains information and recommendations regarding the treatment and disposal of wastewater throughout WEST GOSHEN TOWNSHIP, including the use of on-lot wastewater disposal system and municipal wastewater collection, conveyance and treatment facilities. The plan recommends the up-ripcial sewerage facilities. The sewerage system serves West Goshen, East Goshen, West Whiteland and Westtown Townships. The Plan also recommends the Township develop an On-Lot Management Program requiring mandatory removal of seepage on a routine basis in an effort to prolong the effective life of these systems.

The Daily
acknowledg

A copy of the Official Plan will be available for review prior to the meeting at the WEST GOSHEN TOWNSHIP OFFICE. Any questions pertaining to the contents of the plan should be directed to John Scott, Superintendent of the West Goshen Sewage Treatment Plant at (610) 696-0900 or Max Stone of Glace Associates, Inc. at (717) 731-1573. Public review and comment will be accepted for 30 days after the meeting or until July 27, 1996. Written comments will be accepted at West Goshen Township Municipal Building, 1025 Pacific Pike, West Chester, PA 19380.

Should any person require special accommodations to attend this meeting, contact West Goshen Township Administrative Office at (610) 696-5268, 48 hours in advance.

Publisher's Receipt for Advertising Costs

corporation, publishers of the Daily Local News, a newspaper of general circulation, hereby did notice and publication costs and certifies that the same has been duly paid.

DAILY LOCAL NEWS, a Corporation,
Publishers of DAILY LOCAL NEWS, a newspaper
of General Circulation.

By _____

6. Copy of ALL written comments received and municipal response to each comment in relation to the proposed Plan.

See Following



Board of Supervisors

1025 Paoli Pike
West Chester, PA 19380-4699
(610) 696-5266
Fax: (610) 429-0616

August 1, 1996

Glace Associates, Inc.
3705 Trindle Road
Camp Hill, PA 17011

ATTN: Mr. Max E. Stoner, P.E.

Dear Mr. Stoner:

RE: Act 537 Public Comment Period

Please be advised that the Township properly advertised the public meeting held on June 27, 1996, for the purpose of discussing the Township's draft Act 537 Plan. The only attendees at the meeting were Township and Authority representatives. Therefore, no comments were received from the general public at that meeting nor during the 30 day comment period which ended on July 27, 1996.

Sincerely,

Patricia L. Guernsey
Patricia L. Guernsey
Township Manager

Enclosure: 6/27/96 Minutes of Meeting
Proof of Advertisement for 6/27/96 Meeting

cc: West Goshen Township Board of Supervisors
West Goshen Sewer Authority
West Goshen Township, John M. Scott, Plant Superintendent

7. Project Implementation Schedule.

TABLE D

**PLAN IMPLEMENTATION SCHEDULE
WEST GOSHEN TOWNSHIP, CHESTER COUNTY, PENNSYLVANIA**

ACTIVITY	DATE
Submit Draft to West Goshen Sewer Authority for Review	May 1996
Submit Draft to West Goshen Township Supervisors for Review	May 1996
Submit Draft to West Goshen Township Planning Commission for Review	May 1996
Workshop Meeting With Authority, Supervisors and Planning Commission for Comments	June 1996
Advertise for Public Meeting and Make Draft Available for Public Review for at Least 30 Days	July 1996
Incorporate Public Comments into Plan Prepare Final Wastewater Facilities Plan, Revisions to Draft; Prepare Final Draft	August 1996
Submit Final Draft to Chester County Planning Commission & Health Department for Review and Comment	September 1996

Make Final Draft Available to Sewer User Municipalities for Their Review and Comment	September 1996
---	----------------

Incorporate Review Comments into Plan Prepare Final Plan	November 1996
---	---------------

Approval of Final Plan

Submit Approved Plan to Pennsylvania Department of Environmental Protection	March 1997
--	------------

Upgrade and Expansion Project Schedule:

- | | | |
|---|------------------|------------------------------|
| 1. Act 537 Planning Tentative Approval by DEP | May 1997 - | Starting Point |
| 2. Submit NPDES Part 1 Permit Application | May 1997 - | Within 30 days of Task 1 |
| 3. DEP Review/Approval of NPDES Permit Applic. | October 1997- | 120 days from Task 2 |
| 4. Prepare Preliminary Design of Treatment Facility | May 1997- | 60 days from Plan Submission |
| 5. Prepare Part 2 Permit Application & Design | October 1997 - | 120 days from Task 2 |
| 6. DEP Review and Approval of Part 2 | February 1998 - | 120 days from Task 3 |
| 7. Preliminary Financing | December 1997 - | 60 days from Task 5 |
| 8. Obtain Bids, Final Financing, Start Construction - | April 1998 | 90 days from Task 6 |
| 9. Initiate Start up of New Facility | July 1999 - | 240 days from Task 8 |
| 10. Start Rehab of Existing Facility | September 1999 - | 270 days from Task 8 |
| 11. Initiate Operations of Rehabbed Facilities | May 2000 - | 210 days from Task 10 |

Develop On-lot Management Program	October 1997
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Adopt On-Lot Management Program/ Ordinance	April 1998
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8. Project Implementation Ordinance (Provide existing ordinance or include the development of new ordinances in the schedule of implementation)

A on-lot management program ordinance has been recommended and is anticipated to be adopted by the Township in January 1998. A sample on-lot management ordinance may be found in APPENDIX K of the Plan.

9. Written documentation indicating that the appropriate agencies have received, reviewed and concurred with the method proposed to resolve identified inconsistencies within the proposed alternative and consistency requirements.

The documentation of receipt, review and concurrence with the method proposed follows.

WEST GOSHEN SEWER AUTHORITY
SPECIAL PUBLIC MEETING
June 27, 1996

A Special Public Meeting was held jointly with the Boards of West Goshen Township Supervisors and West Goshen Sewer Authority at the West Goshen Municipal Building on Thursday, June 27, 1996 at 7:00 P.M. The meeting was advertised in the daily newspaper. The purpose of the meeting was to review the West Goshen Township Official Wastewater Facilities Plan and to receive any public input regarding the Plan. Written public comments on the Plan will also be accepted at the Township Municipal Building until July 27, 1996. The following persons attended:

West Goshen Supervisors

Edward G. Meakin, Jr.
Robert S. White

West Goshen Sewer Authority

Robert L. Brown
Walter E. Hoover, Jr.
Lewis H. Reid
James F. McLearn, Jr.

West Goshen Township

Patricia L. Guernsey, Mgr.
John M. Scott, STP
Karen McCallam, STP

Glace Associates

Max E. Stoner

The meeting was called to order at 7:00 P.M. by Mr. Meakin, Chairman of the Board of Supervisors, with a Pledge of Allegiance to the U.S. Flag. Mr. Stoner, Glace Associates was then invited to make a presentation of the Wastewater Facilities Plan prepared by his firm. The details of that Plan had previously been distributed to the Boards of Supervisors and Sewer Authority, and copies were also available for public review prior to the meeting.

Mr. Stoner gave a brief summary using color-coded maps of the areas covered by Plan. He also distributed copies of a preliminary analysis showing how West Goshen user charges would increase depending on the amount borrowed for West Goshen's share of the proposed plant expansion. The amount borrowed depends on how much of the expanded capacity is sold to outside townships. West Goshen should reserve a minimum of 800,000 GPD for its own internal needs. This means the balance of 700,000 GPD is available to outside users. West Whiteland's decision on extra capacity is about 6 weeks away, according to Dr. White.

There was discussion on whether the 100,000 GPD reservation requested by Eldredge, Inc. should be covered by a capital contribution representing a permanent "buy-in", as with outside townships. Or, should the reservation be for a finite period of 10-years so that West Goshen could cancel Eldredge if additional capacity is needed later for Township needs. Mrs. Guernsey pointed out that since Eldredge processes mostly outside sewage, as a business, it can be treated differently than Township site-specific users. Dr. White felt that if a capital contribution is used to cover Eldredge's reservation, a substantial payment should be made up-front. This could be a quarter million dollars, or more. Capital contributions would help reduce West Goshen borrowings.

It is noted that no written comments concerning the Plan were received from West Goshen Township residents, nor from residents in outside townships

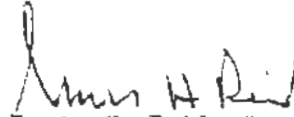
June 27, 1996

benefited by the proposed plant expansion. It is also noted that other than those listed as attending the meeting, no other persons from West Goshen Township, nor from outside townships benefited by the proposed plant expansion attended the meeting.

Mr. Stoner was asked to make a written report of his presentation for the record.

Acting independently of the main business of the hearing, the Sewer Authority Board approved of, and signed contract documents with Kitson Brothers, Inc., Hatfield, PA for roofing replacement at the STP. Contract amount is \$73,945.00. Kitson Brothers was low bidder. Work should start by mid-July.

There being no further business, a motion was made and passed to adjourn the meeting at 7:30 P.M.



Lewis H. Reid, Secretary

WEST GOSHEN TOWNSHIP
CHESTER COUNTY, PENNSYLVANIA

PUBLIC MEETING TO DISCUSS THE
PROPOSED ACT 537 OFFICIAL WASTEWATER
FACILITIES PLAN

JUNE 27, 1996
7:00 P.M.

ATTENDANCE SHEET

<u>NAME</u>	<u>ADDRESS</u>	<u>ORGANIZATION (IF APPLICABLE)</u>	<u>PHONE NO. (OPTIONAL)</u>
John Scott		WGT	
LEW REID		WGSA	
WALT HOOVER		WGSA	
ROBT. L. BROWN		WGSA	
Karen McCallum		WGT	
Jim McLEER		WGSA	
PAT GUERNSEY		WGT	
ED MERKIM		WGT	
ROBERT LITTLE		WGT P.C.	
MAX E. STONER		GLASS ASSOC.	

3. GENERAL PLAN

I. Previous Wastewater Planning

A. Identify and Analyze all existing wastewater planning that:

1. Has been previously undertaken under the Sewage Facilities Act (ACT 537).

West Goshen Township's sewage planning after the original system was completed initially evolved in conjunction with the Chester County Master Sewage Facilities Plan, approved in 1970.

This Act 537 Plan is an update and revision to that 1970 Master Sewage Facilities Plan.

The Pennsylvania Department of Environmental Resources (now Protection) and several consulting engineers undertook a statewide study during the mid and late 1970's and early 1980's which addressed the sewerage needs of regions and municipalities throughout the Commonwealth. Existing Act 537 planning documents and "201" Facilities Plans were used in the formation of that study. Where such documents did not exist, or were not thorough enough, additional studies were undertaken, including a series of public meetings held to solicit input from the general public. The resultant series of reports prepared by sub-basin of major river systems within the Commonwealth, was titled COMPREHENSIVE WASTEWATER QUALITY MANAGEMENT PLAN, (COWAMP).

For the most part, the recommendations proposed in the COMPREHENSIVE WATER QUALITY MANAGEMENT PLAN have been carried out or investigated. However, this report will contain further studies in an attempt to create the best possible solution to wastewater planning for West Goshen Township.

The initial treatment plant and interceptor system construction costs were partially offset by \$225,000 in PL-660 grants. The rest of the original system was paid by bond issue proceeds and connection and tapping fees.

Two (2) EPA grant programs were utilized in the construction of the West Goshen wastewater system. The first grant project included the Taylor Run collection system, pumping station, and force main in 1977. In 1978, the sewage treatment plant was expanded from 1.5 mgd to 4.5 mgd. This project also included two (2) pumping stations, Westtown Way and Washington Street.

2. Has not been carried out according to an approved implementation schedule contained in the plans.

Previous planning has been done in accordance with the 1970 Chester County Master Sewage Facilities Plan.

3. Is anticipated or planned by applicable sewer authorities.

All previous planning and current planning has been prepared by County Planners and the West Goshen Sewer Authority, West Goshen Board of Supervisors and West Goshen Planning Commission.

4. Has been done through Official Plan Revisions (planning modules) and addenda.

All plan revisions have been made by appropriate planning documents in the form of planning modules.

The Chapter 94 Municipal Wasteload Management Plan is prepared annually by the West Goshen Sewer Authority in cooperation with the three outside contributing municipalities; East Goshen, Westtown and West Whiteland Townships. This report gives the status of the capacities and flow of the treatment plant and pumping stations, as well as information on operation and maintenance and planning projections. The 1995 report is located in APPENDIX A.

B. Identify all municipal and county planning documents adopted pursuant to the Pennsylvania Municipal Planning Code.

1. All land use plans and zoning maps identify residential, commercial, industrial, agricultural, recreational, and open space areas.

West Goshen Township has developed the WEST GOSHEN TOWNSHIP SUBDIVISION AND LAND DEVELOPMENT ORDINANCE OF 1976 and AMENDMENTS OF 1981, 1986 AND 1990. This document sets the standards to which development within the Township must adhere.

COMPREHENSIVE PLAN, WEST GOSHEN TOWNSHIP was submitted in October, 1977, and has become somewhat outdated because of increased development and expansion within the Township. It does still, however, guide the Township to orderly and ideal development strategies.

West Goshen Township has been included in a FLOOD INSURANCE STUDY performed in 1977 by the Federal Emergency Management Agency of the Federal Insurance Administration. This document identifies water resources and flood-prone areas within the Township, along with engineering techniques and suggestions to prevent potential problems.

The WEST GOSHEN TOWNSHIP REVISED ZONING ORDINANCE OF MAY 25, 1992 evaluates the growth potential within the various zoning districts in order to provide a guideline for managed development.

Currently, the zoning ordinance provides three (3) separate zones of residential classifications. It also includes various other zones, including six (6) commercial, four (4) industrial, planned office park, multipurpose, and medical service districts. The following is a list of permitted and special permitted uses within each zone, and EXHIBIT 2-1 delineates these zones.

RESIDENTIAL DISTRICT: R-2

This zone is reserved for low density residential development.

Permitted Uses:

- Single family detached dwellings
- Agricultural uses

Special Permitted Uses:

- Churches
- Educational institutions
- Public utility facilities
- Noncommercial recreation

RESIDENTIAL DISTRICT: R-3

This zone allow for similar structures to R-2, but also includes:

Special Permitted Uses:

- Golf courses
- Student houses

RESIDENTIAL DISTRICT: R-4

This district provides for medium density residential areas.

Permitted Uses:

- Single family detached dwellings
- Agriculture

Special Permitted Uses:

- Apartments
- Educational or religious institutions
- Public utility facilities
- Attached single family dwellings
- Noncommercial recreational uses

NEIGHBORHOOD COMMERCIAL DISTRICT: C-1

This zone was established to enable diversified businesses and services.

Permitted Uses:

- Retail sales of various items
- Medical clinics
- Personal service shops
- Offices
- Governmental uses
- Clubs
- Banks
- Single family dwellings in immediate proximity to a commercial establishment

Special Permitted Uses:

- Churches
- Funeral parlors
- Single family dwellings conforming to R-3 regulations.

COMMERCIAL SHOPPING CENTER DISTRICT: C-2

This district allow all activities included within C-1, and also allows:

Permitted Uses:

- Restaurants
- Greenhouses
- Indoor amusement facilities
- Newspaper publishing
- Shopping centers
- Clubs
- Self-service laundry providing adequate water disposal

LIMITED HIGHWAY COMMERCIAL DISTRICT: C-3

Permitted Uses:

- Retail sales
- Personal services
- Offices
- Medical clinics
- Laboratory facilities
- Wholesale sales, storage and distribution.

SPECIAL LIMITED BUSINESS AND APARTMENT DISTRICT: C-4

Permitted Uses:

- Offices
- Banks and financial institutions
- Lab and research facilities
- Wholesale sales, storage and distribution
- Cburches
- Schools
- Nursing homes
- Hospitals & Medical Clinics
- Clubs
- Garden Apartments
- Motels
- Single family attached dwellings

GENERAL HIGHWAY COMMERCIAL DISTRICT: C-5

Permitted Uses:

- All uses allowed in C-2 district
- Public garage, auto repair shops
- Automobile sales-Cleaning, pressing, dry cleaning

Special Permitted Uses:

- Gasoline service station
- Car wash
- Monument sales
- Bank & financial institutions

NEIGHBORHOOD COMMERCIAL DISTRICT RESTRICTED: C-1-R

- Office buildings
- Single family dwellings in immediate proximity to commercial establishment

CAMPUS LIGHT INDUSTRIAL DISTRICT: I-1

This zone allows for industrial development with spacious and attractive surroundings.

Permitted Uses:

- | | |
|--|------------------------------|
| -Research or testing | -Public utility installation |
| -Production, processing, cleaning, repair, storage and distribution of non-retail activity | |
| -Offices | -Commercial airport |
| -Park, athletic clubs | -Financial establishment |
| -Mini warehouse | -Agricultural |

Special Permitted Uses:

- Child & Adult care, Adult education
- Radio & television transmission

LIGHT INDUSTRIAL DISTRICT: I-2

This zone allows for diversified industries which can lead to economic prosperity for a township. Non-polluting and environmentally safe manufacturers utilize this area for experimentation, parking, assembling, and storage. It was designed for similar industries, but needing less lot size than I-1.

Special Permitted Uses:

- | | |
|--------------------------------------|---------------|
| -Child & Adult care, Adult education | |
| -Radio & television transmission | -Retail sales |
| -Motel with special provisions | -Churches |

GENERAL INDUSTRIAL DISTRICT: I-3

This district provides for all uses included within the other industrial districts, but prefer smaller lots sizes and a more built up environment.

Permitted Uses:

- | | |
|--------------------|-------------------------|
| -Agricultural uses | -Lumberyards |
| -Truck sales | -Commercial greenhouses |

- Truck freight terminal
- Parks & recreation
- Research, engineering, or test labs
- Production, processing, cleaning, testing, repair and distribution of material and food stuff
- Mini warehouse
- Offices
- Community centers
- Public utilities

Special Permitted Uses:

- Child & Adult care, Adult education
- Radio & television transmission

LIGHT INDUSTRIAL DISTRICT RESTRICTED: I-2-R

This district includes all uses permitted in I-2 with restrictions in design and regulations.

PLANNED OFFICE PARK DISTRICT

This zone consists of any given plot of land not less than ten (10) acres providing for three (3) or more permitted uses.

Permitted Uses:

- Nonprofit recreation
- Scientific or industrial research or testing
- Offices

Special Permitted Uses:

- Nursing home

MULTI-PURPOSE DISTRICT

This zone allows for all activities included within I-2 and I-3, and permits, as special exceptions, mobile home parks.

MEDICAL SERVICE DISTRICT: M-S

This district provides for public health, safety and welfare for the people of the West Chester region.

Permitted Uses:

- Hospitals
- Medical clinic
- Ambulance services
- Medical education school
- Pharmacy

The following TABLE 1 is a summary of the allowed uses within each zone.

TABLE 1
ZONING PERMITTED USES
WEST GOSHEN TOWNSHIP, CHESTER COUNTY, PENNSYLVANIA

USE	R-1	R-2	R-3	R-4	C-1	C-2	C-3	C-4	C-5	CUR	I-1	I-2
Single Family	X	X	X	O								
Apartments				O								
Agriculture	X	X	X								X	X
Commercial					X	X	X	X	X	X		
Industrial											X	X
ED/Religious	O	O	O									

X Indicates the use is permitted

O Indicated the permitted use is a special exception

Source: West Goshen Township Revised Zoning Ordinance of May 25, 1992.

2. A comparison of proposed land use as allowed by zoning and existing sewage facility planning.

All of the municipal plans focus on the effects of growth and environment to existing and future wastewater needs. They are very much alike in their future goals for the County and the Township as a whole.

To date, all sewage facility planning has corresponded to zoning regulations and land uses. The planning projections and alternatives in this report fully take into consideration the various zoning districts, flood plains, and conservation areas. Population growth and subsequent sewer expansion is reserved for only residential, commercial and industrial areas where the population, topography and current conditions warrant sewer service.

3. Zoning or in the absence of zoning subdivision regulations that establish lot sizes predicated on sewage disposal methods.

TABLE 2 illustrates the various zoning districts and the minimum lot size allowed for various situations.

TABLE 2
MINIMUM LOT SIZES WITHIN ZONING DISTRICTS
ACCORDING TO THE ZONING ORDINANCE OF WEST GOSHEN TOWNSHIP
WEST GOSHEN TOWNSHIP, CHESTER COUNTY, PENNSYLVANIA

ZONE	ANY CONDITION	NO SEWER OR WATER	EITHER SEWER OR WATER	BOTH SEWER AND WATER any use	BOTH SEWER AND WATER SF detached	BOTH SEWER AND WATER attached	BOTH SEWER AND WATER apartment
R-2					1 acre		
Exception				2 acres			
R-3		30,000 ft.	22,000 ft.		18,000 ft.		
Exception				1 acre			
R-4		30,000 ft.	22,000 ft.		18,000 ft.	22,000 ft.	7,260 ft.
Exception				1 acre			
C-1		30,000 ft.	22,000 ft.	18,000 ft.			
C-2	4 acres						
C-3	2 acres						
C-4	4 acres						
C-5	20,000-40,000 ft.						
C-1-R		30,000 ft.	22,000 ft.	18,000 ft.			
I-1	4 acres						
I-2	2 acres						
I-3	1 acre						
Office				2 acres			
Park							
Multi-Purpose	1-5 acres						
M-S				2 acres			

Source: West Goshen Township Revised Zoning Ordinance of 1992.

4. All limitations and plans related to floodplain and stormwater management and special protection areas.

FLOOD PLAINS

The WEST GOSHEN REVISED ZONING ORDINANCE OF 1992 regulates areas prone to flooding through Sections 53 and 78 through 90 of Chapter 84. They are designed to protect floodplain areas, natural resources, watershed areas and soils. Those sections deal in-depth with slope control, floodplain controls to prevent shelter flooding and preservation of alluvial lands. It also establishes a flood hazard district and thoroughly explains the purpose and terms.

Also, floodplain research was covered for areas of West Goshen Township in the FLOOD INSURANCE STUDY. It identifies flood prone areas, engineering techniques and possible alternatives to prevent unnecessary flooding. EXHIBIT 2-2 shows the flood zones.

Planning measures are being taken in compliance with the WEST GOSHEN TOWNSHIP ZONING ORDINANCE. Efforts are being made to protect environmentally sensitive areas within the Township through guidelines, enforcement and penalties. According to the FLOOD INSURANCE STUDY, development is limited within the floodplain except for industrial establishment in the Goose Creek floodplain and residential developments in proximity to Stony Brook Run.

The FLOOD INSURANCE STUDY of West Goshen Township delineates two (2) major and seven (7) minor sources of flooding in the Township. This information is listed on TABLE 3.

TABLE 3

**SOURCES OF FLOODING
WEST GOSHEN TOWNSHIP, CHESTER COUNTY, PENNSYLVANIA**

MAJOR	MINOR	MINOR
Goose Creek	East Branch Chester Creek	Stony Brook Run
East Branch Goose Creek	Plum Run	Taylor Run
	By-Pass Run	Westtown Road Run
	West Run	Tributaries of the above

Source: Flood Insurance Study, 1977.

STORMWATER MANAGEMENT

Stormwater runoff is addressed within the WEST GOSHEN TOWNSHIP SOIL EROSION, SEDIMENTATION AND GRADING CONTROL ORDINANCE, Chapter 69. It reviews the purpose, methods and standards to enable the proper handling of stormwater throughout various types of development.

As well the WEST GOSHEN TOWNSHIP ZONING ORDINANCE makes efforts to protect against stormwater runoff.

5. An analysis of land use planning and zoning and its consistency with protecting environmentally sensitive areas, with special attention to:

- public ground/surface water supply sources
- recreational water use areas
- groundwater recharge areas
- industrial water use
- wetlands

All of West Goshen Township's planning documents heavily emphasize the conservation and protection of watersheds and wetlands. West Goshen Township strives to control groundwater and surface water pollution in order to preserve its recreational and drinking water supplies. Efforts are being made to protect environmentally sensitive areas within the Township through guidelines, enforcement, and penalties. The Township's efforts include a plumbing ordinance prohibiting lead solders and flux and limiting flow of plumbing fixtures. A copy of the plumbing ordinance may be found in the appendix of the Plan.

SCENIC RIVERS

Naturally any and all stream segments could be adversely affected by inadequate wastewater treatment, especially if the occurrence were on a large scale. When classifying the 50,000 river corridor miles in Pennsylvania, the top 10% or 5,000 river miles were categorized in an inventory in 1975. A ranking was given of 1A, 1B, 1C, 2 or 3, with 1A representing the top 2% of corridors currently being studied and the total range representing the top 5% of all categorized river corridors.

The Pennsylvania Scenic Rivers Inventory lists no first, second or third priority class streams within West Goshen Township. However, West Branch Brandywine Creek, East Branch Brandywine Creek and Brandywine Creek in Chester County are first priority streams of statewide significance.

SPECIAL PROTECTED AREAS

Special protected areas, in addition to the areas mentioned above and below, include prime agricultural land (see APPENDIX C), wetlands as identified by the National Wetlands Inventory, Department of Interior (see EXHIBIT 2-3), areas identified by the Pennsylvania Natural Diversity Inventory, and archaeologically and historically significant areas as identified by the Historical and Museum Commission.

According to Jonas Carpenter, Inspector, Surface Mine Conservation, Department of Environmental Resources in a November 28, 1989 telephone interview, no mining activity permits of any type have been issued in West Goshen Township, nor is it foreseen in the future. Therefore, the Township should not be concerned with areas deemed unsuitable for mining activities due to the fact that no substantial deposits of coal or other valuable minerals are located in the area.

RECREATIONAL WATER USES

The 1977 COMPREHENSIVE PLAN lists two (2) areas of recreational water use, listed below in TABLE 4.

TABLE 4

RECREATIONAL WATER USE AREAS WEST GOSHEN TOWNSHIP, CHESTER COUNTY, PENNSYLVANIA

<u>PARK</u>	<u>ACRES</u>	<u>OWNERSHIP</u>	<u>USES/FACILITIES</u>
North Hills	20	Private	Pond, Swimming area
Suburban Village	5	Private	Pond

Source: Comprehensive Plan of West Goshen Township, 1977.

In addition, the West Chester Reservoir provides public fishing and aesthetic values as well as a future drinking water source.

GROUND WATER RECHARGE

Within West Goshen Township, there are four (4) major surface water streams that flow mainly north to south. They include Goose Creek, East Branch Goose Creek, Stony Brook Run, and East Branch Chester Creek, and all their tributaries, which are in the Chester or Brandywine Creek Drainage Areas.

The major areas of groundwater recharge in West Goshen Township are agricultural land, flood plains, wetlands and woodland, as shown in EXHIBIT 2-4. According to the COMPREHENSIVE PLAN, woodlands in 1977 spanned 750 acres, but due to development pressures, the current acreage is drastically lower. Also, the East Branch of Chester Creek provides surface water to the West Chester Reservoir.

WATER SUPPLIES AND STATE WATER PLAN

Practically the entire Township receives public water furnished by either Philadelphia Suburban Water Company - Great Valley Division or the West Chester Area Municipal Authority. Information from the Annual Water Supply Report and State Water Plan is located in APPENDIX D.

INDUSTRIAL WATER USE

There are five (5) industrial water users listed by the U.S.G.S. as owning and utilizing corporate wells. The well owners and statistics are listed in TABLE 5.

TABLE 5

INDUSTRIAL WELL USERS AND STATISTICS WEST GOSHEN TOWNSHIP, CHESTER COUNTY, PENNSYLVANIA

WELL		DEPTH	YIELD
<u>No.</u>	<u>OWNER</u>	<u>(FEET)</u>	<u>(GPM)</u>
UL3270	Rice, O.	125.00	30.00
UL3281	Dalin, J.	130.00	7.00
3304	Hickman, R. J, Inc.	150.00	.50
3309	Barry and Zobel	130.00	7.00
3317	Hagerty, J. Leon	123.00	12.00

Source: Bureau of Topographic and Geologic Survey, DER, 1992.

WETLANDS

Located within West Goshen Township are several types of wetlands as mapped by the U.S. Department of Interior shown on Exhibit 2-3. West Goshen Township is unaware of any wetlands classified as "Exceptional Value" wetlands. The Township relies upon state and federal regulations and guidance for protection of wetlands. All developers are required to verify the existence of wetlands and file appropriate applications to the county, state or federal agencies for construction in or near these areas.

II. Physical and Demographic Analysis utilizing written description and mapping.

A. Base line mapping.

1. Identification of Planning Area(s), Municipal Boundaries, Sewer Authority/Management service area Boundaries.

West Goshen Township consists of approximately 8,000 acres of primarily residential land. It is located in the east-central section of Chester County, eight (8) miles north of the Delaware state line, and in the southeastern portion of the Delaware River Basin. Physiographically, West Goshen Township is situated in the Piedmont Uplands Section of the Piedmont Province. The general location plan is located in EXHIBIT 2-7.

The study area is surrounded by five (5) municipalities: West Whiteland Township to the north, East Goshen Township to the east, Westtown Township to the south and East Bradford Township to the west. West Goshen also surrounds the Borough of West Chester on three (3) sides (north, east and south).

The Sewage Authority boundaries are comprised of all sewerred areas within the Township. The extent of this area can be seen in EXHIBIT 2-8. There are no sewage management agencies, such as on-lot management districts, in West Goshen Township at the present time due to the limited number of on-lot disposal systems.

Local agency boundaries are all areas that are not served by public sewer but are under the jurisdiction of the Chester County Department of Health which has several sewage enforcement officers on staff for on-lot review of permit applications and repair/replacement of existing malfunctioning systems.

2. Identification and Mapping of Physical Characteristics (streams, lakes, impoundments, natural conveyance channels, drainage basins in the planning area).

The physical characteristics can be seen in EXHIBIT No. 2-9.

3. Soils - Analysis with description by soil type and soil mapping (with any topography limitations) showing areas suitable for conventional on-lot systems, elevated sand mounds, and areas suitable for on-lot systems. Mapping of Prime Agricultural Soils and locally protected agricultural soils.

The following TABLE 6 provides a listing of the various soils contained within West Goshen Township as mapped and classified within the Soil Survey of Chester and Delaware Counties, Pennsylvania, prepared by the United States Department of Agriculture, Soil Conservation Service, in cooperation with the Pennsylvania State University, College of Agriculture and the Pennsylvania Department of Environmental Resources, State Conservation Commission. Contained within the listing is the soil mapping symbol, the soil name description, and specific and general limitations to the soil's use with septic system absorption areas. EXHIBIT 2-10 shows the delineated soil boundaries.

TABLE 6

**LIMITATIONS OF SOILS
FOR USE WITH SEPTIC SYSTEM ABSORPTION AREAS
WEST GOSHEN TOWNSHIP, CHESTER COUNTY, PENNSYLVANIA**

SYMBOL	SOIL TYPE	SPECIFIC LIMITATIONS						GENERAL LIMITATION
		1	2	3	4	5	6	
CdA2	Chester Silt Loam, 0-3%, Moderately eroded			X				Moderate
CdB	Chester Silt Loam, 3-8%			X				Moderate
CdB2	Chester Silt Loam, 3-8%, Moderately eroded			X				Moderate
CgB	* Chester Very Stony Silt Loam, 0-8%			1				Moderate
CgC	* Chester Very Stony Silt Loam, 8-15%			1				
Ch	* Chewacla Silt Loam		1					
CkB2	* Chrome Grav. Silty Clay Ln, 3-8%, Mod. eroded							Moderate
CkC2	* Chrome Grav. Silty Clay Ln, 8-15%, Mod eroded							
CkC3	* Chrome Grav. Silty Clay Ln, 8-15%, Sev eroded		1					
CkD2	Chrome Grav. Silty Clay Ln, 15-25%, Mod. erod			1		X		Severe
CkE2	* Chrome Grav. Silty Clay Ln, 25-40%, Mod. erod							Severe

TABLE 6, continued

**LIMITATIONS OF SOILS
FOR USE WITH SEPTIC SYSTEM ABSORPTION AREAS
WEST GOSHEN TOWNSHIP, CHESTER COUNTY, PENNSYLVANIA**

SYMBOL	SOIL TYPE	SPECIFIC LIMITATIONS						GENERAL LIMITATION
		1	2	3	4	5	6	
GeA2	* Glenelg Channery Silt Lm, 0-3%, Mod. eroded							Moderate
GeB	Glenelg Channery Silt Loam, 3-8%	X		X				Moderate
GeB2	Glenelg Channery Silt Loam, 3-8%, Mod. Eroded	X		X				Moderate
GeC	Glenelg Channery Silt Loam, 8-15%	X		X		X		Moderate
GeC2	Glenelg Channery Silt Lm, 8-15%, Mod. eroded	X		X		X		Moderate
GeC3	Glenelg Channery Silt Lm, 8-15%, Severely ero	X		X		X		Moderate
GeD	Glenelg Channery Silt Loam, 15-25%					X		Severe
GeD2	Glenelg Channery Silt Lm, 15-25%, Mod. eroded					X		Severe
GeD3	Glenelg Channery Silt Lm, 15-25%, Severely er					X		Severe
GeE3	Glenelg Channery Silt Lm, 25-35%, Severely er					X		Severe
GgB3	Glenelg Silt Loam, 3-8%, Severely eroded	X		X				Moderate
GmD	Glenelg Very Stony Silt Loam, 15-25%					X		Severe
GnA	* Glenville Silt Loam, 0-3%							Moderate
GnB	Glenville Silt Loam, 3-8%			X			X	Severe
GnB2	Glenville Silt Loam, 3-8%, Mod. eroded			X			X	Severe
GnC1	* Glenville Silt Loam, 8-15%, Mod. eroded							
GsB	* Glenville Very Stony Silt Loam, 0-3%							Moderate
MgB2	Manor Loam, 3-8%, Moderately eroded			X				Moderate
MgB3	Manor Loam, 3-8%, Severely eroded			X				Moderate
MgC	Manor Loam, 8-15%			X		X		Moderate
MgC2	Manor Loam, 8-15%, Moderately eroded			X		X		Moderate
MgC3	Manor Loam, 8-15%, Severely Eroded			X		X		Moderate
MgD	Manor Loam, 15-25%					X		Severe
MgD2	Manor Loam, 15-25%, Moderately eroded					X		Severe
MgD3	Manor Loam, 15-25%, Severely eroded					X		Severe
MgE3	Manor Loam & Channery Lm, 25-35%, Severely er					X		Severe
NaA	* Neshauney Gravelly Silt Loam, 0-3%							Moderate
NaB2	Neshauney Gravelly Silt Lm, 3-8%, Mod. eroded			X				Severe
NaD	Neshauney Very Stony Silt Loam, 8-25%			X		X		Severe
Ne	* Mohadkee Silt Loam							
WoA	* Worsham Silt Loam, 0-3%							Moderate
WoB	* Worsham Silt Loam, 3-8%							Moderate
WoB2	* Worsham Silt Loam, 3-8%, Moderately eroded							Moderate

1. Depth to Bedrock

4. Poor Filter

2. Flooding

5. Slope, Excessive

3. Percolates Slowly

6. Wetness

* No Information Available

Source: Soil Survey of Chester and Delaware Counties, Pennsylvania.

Based on this soil information and its mapping in EXHIBIT 2-11, it appears as though no soil in the Township is without some sort of limitation for the use of subsurface wastewater disposal systems. However, with the newer on-lot disposal construction methods available, adequate suitable sites have been found for these systems. The limitations of moderate and severe soils are analyzed below:

A. MODERATE- Slope zero to eight per cent (0-8%)

These deep well-drained soils have some limitations for the installation of conventional systems. These limitations would usually be depth to bedrock or hazard of flooding. Alternate systems can usually be installed unless an elevated sand mound is required and the slope exceeds twelve percent (12%).

B. SEVERE- Zero to thirty five per cent (0-35%)

These soils have severe limitations for the installation of conventional and alternate systems. They will generally have one or more of the following restrictions: wetness, seasonal high water table, slow permeability, excessive slope, depth to bedrock, and flooding. When soils in this category are considered for on-lot disposal systems, extreme caution should be observed in testing the site.

The use of subsurface systems is possible where soils are adequately deep to maintain a vertical separation of forty-eight inches on slopes ranging from 0 to 25%. This requirement immediately eliminates three soils on the list - Chrome Gravelly Silty Clay Loam; 25-40%, Glenelg Channery Silt Loam; 25-35%, and Manor Loam & Channery Loam; 25-35% -from consideration for the use of any subsurface system based solely on slope.

Soils having slopes greater than twelve per cent (12%) are recognized as having slopes too great to provide for adequate conditions to support a properly functioning elevated sand mound system. However, these slopes may be able to provide conditions suitable for the installation of other alternative type systems. However, these slopes accompanied by shallow depth to bedrock provide a combination that is not suitable for subsurface disposal system installation.

There are several areas that appear to be unsuitable for any type of subsurface wastewater disposal system. They include the following conditions:

- a. Those containing soils that have slopes greater than twenty-five per cent;
- b. Those soils that have inadequate depths of suitable soils to provide for sufficient wastewater renovation prior to the effluent reaching the ground-water; and
- c. Those areas and soils that are subject to flooding and/or seasonal wetness, such as floodplain locations and drainage-ways.

4. Geologic Features - Identification through analysis, mapping and their relation to existing (including areas where existing nitrate-nitrogen levels are in excess of 5 mg/l) or potential nitrate-nitrogen pollution and drinking water sources.

An examination of the geologic formations and their ability to provide water for home and business uses is essential when addressing the potential for significant development.

Water Resource Investigations 77-67 contains specific information concerning these formations and geologic systems. Also contained within the former publication is a log of well information assembled for wells throughout the Township and Chester County. Of course, municipal water supply sources could be located in areas of significant groundwater production and serve development in areas of low groundwater production. Individual wells within areas of low groundwater production could be an alternative to municipal water supplies.

The following TABLE 7 lists the various geologic formations and their water production capabilities, and EXHIBIT 2-12 shows the locations of the geologic zones.

TABLE 7

**GEOLOGIC FORMATIONS AND WATER RESOURCE PROPERTIES
WEST GOSHEN TOWNSHIP, CHESTER COUNTY, PENNSYLVANIA**

ROCK TYPE	AQUIFER	# OF WELLS	YIELD gal/min	DEPTH feet	# OF WELLS	pH RANGE	MEDIAN pH	# OF WELLS	HARDNESS RANGE	MEDIAN HARDNESS	DISSOLVED SOLIDS	DESCRIPTION
Gneissic												
	Gabbroic Gneiss and Gabbro	179	5-300	10-550	51	5.9-7.1	6.4	55	10-160	50	Low	
	Granite Gneiss	191	0-300	10-550	95	5.7-7.7	6.4	104	30-180	60	Low	Medium grained, gray
	Pegmatite	3	7-15	10-550	2	5.8-6.1		2	10-90			Quartz & Feldspar- Coarsely Crystalline
Serpentinite												
	Serpentinite	30	2-80	40-310	9	7.3-9.1	8.1	13	40-250	140	Moderate	Fibrous to Massive- Magnesium Rich
Schist												
	Peters Creek Schist	110	0-312	13-1,004	70	4.8-7.6	5	71	10-140	40	Very Low	Chlorite mica schist & thin beds of quartzite
	Missahickon Formation	455	0-400	13-1,004	148	5.1-7.9	6.1	158	10-420	30	Very Low	Schist & Gneiss

Source: Ground Water Resources of Chester County, Pennsylvania
United States Geologic Survey
Water Resources Investigations 77-67
Open File Report, 1977

Note: Figures given are representative of Chester County as a whole.

5. Topography - Showing slopes that are suitable for conventional systems, slopes that are suitable for elevated sand mounds and slopes suitable for on-lot systems.

Within West Goshen Township, there are four (4) major surface water streams that flow mainly north to south. They include Goose Creek, East Branch of Goose Creek, Stony Brook Run, East Branch Chester Creek, and their numerous tributaries, all of which are in the Chester or Brandywine Creek Drainage Basin. EXHIBIT 2-9, which has been divided into the major and minor drainage areas, also shows the major creeks and tributaries within the Township. Exhibit 2-5 shows areas of potential on-lot disposal system malfunctions.

Naturally, the performance of any on-lot disposal system is greatly affected by the suitability of the soil in which the system is placed and the manner in which it is installed. With the recent strengthening of the enforcement capabilities of the Department of Environmental Protection and the increased responsibilities placed on local governing agencies, proper siting should become much more "proper."

6. Potable Water Supplies - Identification through mapping, description and analysis to include public water supply capacity and aquifer yield for groundwater supplies.

Concentrating specifically on West Goshen Township, information of well statistics was obtained from the U.S. Geologic Survey. TABLE 8 was formulated according to that information.

TABLE 8
WELL CHARACTERISTICS
WEST GOSHEN TOWNSHIP, CHESTER COUNTY, PENNSYLVANIA

ROCK TYPE	AQUIFER	# OF WELLS	OWNERSHIP	WATER USE	WELL DEPTH (feet)	YIELD (gpm)
Gneissic	Gabbroic	17	Private: 14	Household: 15	Ave: 119	Ave: 15.9
	Gneiss & Schist		Corporation: 3	Industrial: 1 Irrigation: 1	High: 250 Low: 26	High: 44.0 Low: 2.0
	Felsic Gneiss	19		Household: 19	Ave: 128 High: 248 Low: 43	Ave: 12.6 High: 30.0 Low: 4.0
Serpentinite	Serpentinite	7		Household: 7	Ave: 106 High: 260 Low: 63	Ave: 22.9 High: 50.0 Low: 6.0

TABLE 8, continued

WELL CHARACTERISTICS
WEST GOSHEN TOWNSHIP, CHESTER COUNTY, PENNSYLVANIA

Schist	Peters	10	Household: 10	Ave: 122	Ave: 12.8
	Creek			High: 195	High: 22.0
	Schist			Low: 43	Low: 4.5
	Wissahickon	56	Private: 54	Ave: 123	Ave: 14.9
	Formation-		Corporation: 2	High: 280	High: 600.0
	Mica Phase		Commercial: 1	Low: 56	Low: 0.0
			Industrial: 1		
			Irrigation: 1		
Other	Unknown	38	Household: 34	Ave: 168	Ave: 16.5
			Industrial: 3	High: 498	High: 60.0
			Public: 1	Low: 63	Low: 2.5

Source: Bureau of Topographic and Geologic Survey, DER, 1989.

7. Wetlands - Identify wetlands as defined in Title 25, Chapter 105 by description, analysis and mapping. Proposed collection, conveyance and treatment facilities and lines must be located and labeled, along with the identified wetlands, on the map.

Refer to Exhibit No. 2-3.

8. Population - List historical, current and future population figures and projections of the municipality. Discuss any discrepancies between municipal, county, state (DEP), and federal population projections as they relate to sewage facilities.

An estimate of the population within West Goshen Township is necessary in order to effectively plan for the wastewater treatment needs of the municipality. Population data has been generated for the Township from three different planning efforts, including the Comprehensive Water Quality Management Plan study, Chester County Planning Commission and the State Water Plan. However, as the State Water Plan figures are much more recent and are generally recognized as applicable to planning efforts for many purposes within the jurisdiction of the Department of Environmental Protection, they will be utilized as the population data bases. They are provided in TABLE 9 and visually displayed in EXHIBITS 2-6A, B and C. The Chester County Planning Commission populations projections are shown on TABLE 10A, page GP-29 for comparison purposes.

TABLE 9
POPULATION FIGURES
WEST GOSHEN TOWNSHIP, CHESTER COUNTY, PENNSYLVANIA

MUNICIPALITY	1970	1980	1990	2000	2010	2020	2030
WEST GOSHEN TOWNSHIP	12,858	16,164	18,082	20,002	21,083	21,268	21,566
EAST BRADFORD TWP.	3,260	3,219	6,440	8,510	10,120	11,207	11,817
EAST GOSHEN TOWNSHIP	5,138	10,021	15,138	20,099	23,967	26,590	28,077
WESTTOWN TOWNSHIP	5,069	6,774	9,937	13,005	15,377	16,959	17,823
WEST WHITELAND TWP.	7,149	9,851	12,403	15,157	17,168	18,352	18,803
WEST CHESTER BOROUGH	19,301	17,435	18,041	17,826	19,078	20,445	21,518
CHESTER COUNTY	270,311	316,660	376,396	426,528	468,512	499,870	521,453

TABLE 9, continued

POPULATION FIGURES
WEST GOSHEN TOWNSHIP, CHESTER COUNTY, PENNSYLVANIA

TOWNSHIP	1970	1980	1990	2000	2010	2020	2030
WEST GOSHEN	12,858	16,164	18,082	20,002	21,083	21,268	21,566
net change		3,306	1,918	1,920	1,081	185	298
% increase		25.71%	11.87%	10.62%	5.40%	.88%	1.40%
EAST BRADFORD	3,260	3,219	6,440	8,510	10,120	11,207	11,817
net change		-41	3,221	2,070	1,610	1,087	610
% increase		-1.26%	100.06%	32.14%	18.92%	10.74%	5.44%
EAST GOSHEN	5,138	10,021	15,138	20,099	23,967	26,590	28,077
net change		4,883	5,117	4,961	3,868	2,623	1,487
% increase		95.04%	51.06%	32.77%	19.24%	10.94%	5.59%
WESTTOWN	5,069	6,774	9,937	13,005	15,377	16,959	17,823
net change		1,705	3,163	3,068	2,372	1,582	864
% increase		33.64%	46.69%	30.87%	18.24%	10.29%	5.09%
WEST WHITELAND	7,149	9,851	12,403	15,157	17,168	18,352	18,803
net change		2,702	2,552	2,754	2,011	1,184	451
% increase		37.80%	25.91%	22.20%	13.27%	6.90%	2.46%
WEST CHESTER BOROUGH	19,301	17,435	18,041	17,826	19,078	20,445	21,518
net change		-1,866	606	-215	1,252	1,367	1,073
% increase		-9.67%	3.48%	-1.19%	7.02%	7.17%	5.25%
CHESTER COUNTY	270,311	316,660	376,396	426,528	468,512	499,870	521,453
net change		46,349	59,736	50,132	41,984	31,358	21,583
% increase		17.15%	18.86%	13.32%	9.84%	6.69%	4.32%

Source: Pennsylvania State Water Plan, March, 1992.

This distribution of population is very probably the result of the availability or unavailability of municipal water and wastewater facilities throughout the individual municipalities in the area.

The West Goshen Township COMPREHENSIVE PLAN of 1977 proposed the following population histories and projections, shown in TABLE 10.

TABLE 10

**POPULATION HISTORY AND PROJECTIONS
OBTAINED FROM COMPREHENSIVE PLAN**

WEST GOSHEN TOWNSHIP, CHESTER COUNTY, PENNSYLVANIA

	<u>YEARS</u>	<u>TOTAL POPULATION</u>	<u>NET CHANGE</u>	<u>PERCENT INCREASE</u>
ACTUAL	1950	3,542		
	1960	8,214	4,672	131.9
	1970	12,858	4,644	56.5
PROJECTED	1985	17,342	4,484	34.9

Source: Comprehensive Plan, West Goshen Township, 1977.

The population projections proposed by the West Goshen Township COMPREHENSIVE PLAN of 1977 computed to be relatively consistent with those compiled by the State Water Plan. The COMPREHENSIVE PLAN projected a 1985 population of 17,342, and the State Water Plan computed 1985 to be 17,651. This discrepancy computes to only a 1.8 % difference, with the COMPREHENSIVE PLAN's figures being slightly lower.

According to current population growth, the Township is growing at a rate consistent to that originally projected, and the population figures are consistent between the two plans.

Therefore, there are no foreseen reasons to alter the current projections, although the COMPREHENSIVE PLAN'S figures are outdated.

West Goshen Township has seen continual growth throughout the years and is expected to remain in that same trend. The entire area of Chester County is desirable for commuters to numerous urban centers. The only factor discouraging growth within West Goshen Township are areas of steep slope, wetlands and available land.

The Chester County Planning Commission population projections obtain to comparison purposed are shown in TABLE 10A.

TABLE 10A
POPULATION PROJECTIONS
CHESTER COUNTY, PENNSYLVANIA

MUNICIPALITY	CENSUS		PROJECTIONS		
	1980	1990	2000	2010	2020
WEST GOSHEN TOWNSHIP	16,164	18,082	19,350	19,450	19,550
EAST BRADFORD TWP.	3,219	6,440	9,670	11,770	12,850
EAST GOSHEN TOWNSHIP	10,021	15,138	16,390	16,710	16,950
WESTTOWN TOWNSHIP	6,774	9,937	10,610	11,230	11,840
WEST WHITELAND TWP.	9,581	12,403	15,270	16,580	17,060
WEST CHESTER BOROUGH	17,435	18,041	18,120	18,270	18,340
CHESTER COUNTY	316,660	376,396	425,800	460,200	489,300

Source: Chester County Planning Commission Planning Bulletin July 1992, Table 2.

III. Existing Sewage Facilities in the Planning Area

A. Identify, map and describe municipal and nonmunicipal, individual and community sewerage systems in the planning area including:

1. Location, size and ownership of treatment facilities, main intercepting lines, pumping stations force mains including their size, capacity, point of discharge. Also include name of the receiving stream, drainage basin, and facility's effluent discharge requirements.

The West Goshen Sewage Treatment Plant owned by the West Goshen Sewer Authority started operations in 1963, and is located directly east of the SEPTA railroad tracks at the south-eastern boundary of the Township and discharges into Goose Creek, a tributary of Chester Creek. The location is shown in EXHIBIT 2-8.

The plant has been designed to operate as an advanced wastewater treatment plant utilizing biofiltration via roughing trickling filters and an activated sludge process to provide additional treatment. It is designed for the treatment of 4.5 million gallons of domestic sewage per day. Flow equalization facilities are currently under design which will allow for a more uniform introduction of sewage flows into the treatment process thereby serving to maximize the treatment efficiency.

The NPDES effluent requirements were reissued in 1996. The permit includes:

- 1.) The average annual flow of the effluent discharge shall not exceed 4.5 mgd.
- 2.) Average monthly effluent discharge limitation for Carbonaceous Biochemical Demand (5-day); 15 mg/l and 563 lbs./day from May to October, and 25 mg/l and 938 lbs/day from November to April.
- 3.) Average monthly effluent discharge limitation for Suspended Solids; 30 mg/l and 1126 lbs./day.
- 4.) Average monthly effluent discharge limitation for Ammonia as N 2 mg/l and 75 lbs./day from May to October, and 6 mg/l and 225 lbs/day from November to April.

- 5.) Geometric average monthly effluent discharge limitation for Fecal Coliform 200 colonies per 100 ml from May to September and 1000 colonies per 100 ml October to April.
- 6.) Average monthly discharge limitations for copper and monitoring of cyanide.
- 7.) Average monthly effluent discharge limitation for Total Chlorine Residual.

The West Goshen Sewer Authority owns and the Township operates essentially all sewer lines, manholes, and seventeen pumping stations, ten of which are currently in operation. The general service areas and pumping stations are shown in EXHIBIT 2-8.

TABLE 11
FLOW CAPACITIES OF PUMPING STATIONS
WEST GOSHEN TOWNSHIP, CHESTER COUNTY, PENNSYLVANIA

PUMPING STATION		CAPACITY (gpd)	1994 AVG FLOW (gpd)	1995 AVG FLOW (gpd)
Montgomery Avenue	1	216,000	72,000	66,000
Trinity Drive	2	259,200	55,000	47,000
Spruce Avenue	3	1,008,000	219,000	190,000
	4	Abandoned		
	5	Abandoned		
Ellis Lane	6	1,450,000	453,000	322,000
	7	Abandoned		
	8	Abandoned		
	9	Abandoned		
Woodcrest	10	144,000	10,000	9,000
Taylor Run	11	1,440,000	561,000	522,000
Washington Street	12	5,472,000	958,000	837,000
Westtown Way	13	3,888,000	1,464,000	1,294,000
	14	Abandoned		
	15	Abandoned		
Northeast (Fernhill Avenue)	16	1,100,000	128,000	149,000
Hamilton Woods	17	345,600		24,000

There have been no reported hydraulic overloads of these pumping stations.

2. A narrative and schematic diagram of the facility's basic treatment processes including the facility's NPDES permitted capacity, any remaining reserve capacity and the policy concerning the allocation of reserve capacity.

The process description of the West Goshen Township Wastewater Treatment Facility is as follows:

PRETREATMENT

The initial phase of treatment begins at the operations building. First, the sewage is screened of any rags, wood, rubber materials and other debris by a mechanically cleaned bar screen.

The sewage flows through a Parshall flume, enters the raw sewage wet well, and is pumped through a 16-inch force main to the detritors for grit removal. Mechanical removal of grit is accomplished through the use of a grit washing-dewatering cyclone device, and a screw conveying grit collector. From the detritors, sewage flows by gravity to the primary clarifiers.

PRIMARY TREATMENT

The purpose of primary sedimentation is to separate the settleable and floatable solids from the wastewater for appropriate handling. Finely dispersed solids are removed by floc formation with larger particles. Removal of colloidal materials is via adsorption to larger particles.

The settling tanks have a skimmer that removes the floatables, while all the settled solids are mechanically raked to the center for discharge through the sludge pit. The clarified sewage flows over the weirs at the periphery of each clarifier and then by gravity to the trickling filters.

Most of the settleable solids or about 40 to 60 percent of the suspended solids are separated and removed from the sewage by the physical process of sedimentation in the primary settling tanks.

SECONDARY TREATMENT

The secondary treatment provided by the trickling filter process depends primarily on aerobic biological organisms for the biochemical decomposition or conversion of dissolved or suspended organic solids to inorganic or stable organic solids. Effluent from the primary clarifiers flows by gravity to a distribution chamber where it is then equally distributed to each of the trickling filters. Any excess wastewater spills over the weir in the distribution chamber and flows to the two high rate secondary trickling filters.

The wastewater enters the trickling filters through a vertical center column. Here the flow is uniformly distributed into four-arm distributors which are provided with weir boxes confining the flow to two arms at minimum flow rates. This will insure sufficient flow to rotate the distributor. The treated secondary trickling filter effluent enters into the collection channel where it then flows by gravity to the intermediate clarifiers.

Recirculation of the wastewater within the system can be accomplished in two ways. Primary recirculation is achieved by allowing primary trickling filter effluent to flow to the primary recirculation wet well in the basement of the operation building. From there, it is pumped back to the primary clarifiers. In secondary recirculation, a portion of the intermediate clarifier effluent flows by gravity to the secondary recirculation wet well, from where it is pumped directly to the secondary trickling filter distribution chamber. Recirculation provides additional treatment to the wastewater and helps equalize changes in hydraulic loading caused by erratic flow.

TERTIARY TREATMENT

Clarified effluent from the intermediate clarifiers flows by gravity to the intermediate pumping station and from there pumped to the influent end of the aeration tanks.

In the aeration tanks, the growth of certain strains of aerobic bacteria is stimulated through aeration and agitation. The bacterial cultures develop on the finely suspended organic materials which tend to form clusters which cling to the chemical precipitate. This is the activated sludge "floc" which absorbs most of the sewage pollutants within 15 to 45 minutes.

From the aeration tanks, the mixed liquor flows into the final clarifiers where the sludge floc produced by the process is separated by gravity from the treated wastewater and then recycled back to the aeration tanks to provide a fresh supply of organisms to absorb the influent waste load. It is here during the remaining detention period in the aeration tanks that the organisms perform the essential life process: reproduction, digestion and death.

Sludge wasting is best and most accurately accomplished by withdrawing settled sludge directly from the bottom of the settling tanks where the solids are concentrated and uniform and then recycling back to the influent of the aeration tank.

DISINFECTION

After leaving the final clarifiers, the next and final process is that of disinfection in the chlorine contact tank. Strictly defined, disinfection is the destruction of all pathogenic organisms. When wastewater effluents are discharged to receiving water which may be used as a source of public water supply, shell-fish growing areas, or for recreational purposes, treatment the destruction of pathogenic organisms is required to minimize health hazards and pollution of these receiving waters. To accomplish disinfection, sufficient chlorine must be added to satisfy the chlorine demand and leave a chlorine residual. The fecal coliform test will be used as a control parameter for determining a sufficient chlorine dosage.

The disinfection process includes dechlorination facilities using a sulfur dioxide gas feed system.

SLUDGE HANDLING

Sludge solids from the intermediate clarifiers flow by gravity to the raw sewage wet well and are resettled in the primary clarifiers. Combined primary and intermediate sludge flow by gravity to the sludge well in the basement of the operations building where it is pumped into the anaerobic digesters.

Sludge settled in the final clarifiers that is not returned to the aeration tanks flows to the blower and sludge pump building, and from there is pumped into the anaerobic digesters. In the digesters, the solids are stored to permit their stabilization by biological action, producing a product that is easily handled by the belt filter press. Final disposal of dewatered sludge is at the Lanchester Sanitary Landfill.

A schematic diagram of the treatment process is located in EXHIBIT 2-13.

The Treatment Plant received a 1995 average daily flow of 3,444,000 gallons, with a design capacity of 4.5 million gallons per day. This computes to 76% utilization. The 1995 Chapter 94 - Wasteload Management Report projects the next five-year flows utilizing the average of the past five-year flow which was 3.607 mgd. It is projected that with the demands of development within the contributing municipalities, the plant will be receiving flows of 4.039 mgd in the year 2000, approximately 90% of its reserve capacity. The current allocation, existing flows and projected flows are shown in TABLE 12.

TABLE 12

CONTRIBUTING MUNICIPALITIES WASTEWATER FLOWS TO THE WEST GOSHEN SEWAGE TREATMENT PLANT, CHESTER COUNTY, PENNSYLVANIA

MUNICIPALITY	RESERVE	(million gallons per day)										
	CAPACITY	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
East Goshen Township	1.800	.722	.755	.806	.816	.860	.867	.877	.883	.904	.909	.952
Westtown Township	.230	.147	.150	.151	.162	.225	.225	.225	.225	.225	.225	.225
West Whiteland Township	.420	.375	.379	.380	.387	.403	.390	.475	.540	.550	.560	.570
West Goshen Township	2.050	2.334	2.195	2.025	2.423	2.529	1.962	2.189	2.228	2.257	2.279	2.292
	4.500	3.578	2.469	3.362	3.775	3.985	2.444*	3.766	3.876	3.936	3.971	4.039

Source: Annual Report of Consulting Engineers on the Operation of the Sewage Treatment Plant and Collection System, West Goshen Township, 1995.

Note: * 1995 average flow was 3.444 mgd, the five year projection is estimated from the past five-year average of 3.607 mgd.

The East Goshen, Westtown Township, and West Whiteland Township flows are listed here as supplied by those municipalities for preparation of the Chapter 94 Wasteload Management Plan for 1995. The West Goshen Township flows for 1996 thru 2000 have been calculated by incorporating the anticipated flows from the Authority's projects and known developments.

The following is a summary of the development activity within each of the contributing municipalities. This information is also displayed in APPENDIX A. Refer to Tables 16 and 17 for development activity in West Goshen Township.

EAST GOSHEN TOWNSHIP

Sewer Connections			
Total in 1995	=		20
Expected in 1996	=		40
Total number of connections	=		3,429

WESTTOWN TOWNSHIP

Sewer Connections			
Total in 1995	=		4
Total connections	=		724
Pumping Stations			
Pleasant Grove, Capacity			490,000
Present flow			116,630
Projected 1997 flow			176,630
Cobblefield, Capacity			23,000
Present flow			15,400

WEST WHITELAND TOWNSHIP

Sewer Connections			
Total in 1995	=		28
Total EDU's	=		1,056
Pumping Station			
Grubbs Mill Road, Capacity			1,800,000
(Based on one pump)			
Present max. flow			450,000
Projected 1997 max. flow			600,000

At this rate, it can be seen that West Whiteland and Westtown Townships have used up all of their allocated capacity and based on average daily flows, West Goshen and East Goshen Townships will be very near their allocated capacities in the near future.

3. A description of problems with existing facilities, including existing or projected overload under Title 25, Chapter 94 (relating to municipal wasteload management) or violations of a national pollutant discharge elimination system permit, Clean Streams Law Permit, or other permit, rule or regulation of the Department.

The West Goshen Sewer Authority Wasteload Management Report identifies a future hydraulic overload and an existing organic overload. The hydraulic overload is related to the future needs of the contributing townships. The organic overload appears to be a "Paper" overload, that is the Water Quality Part II permit bases organic loading on a concentration of 200 mg/l, however, the treatment plant has not experienced any physical overloads and testing of the treatment unit efficiencies are in the 90th percentiles. The Plant has not had a NPDES permit violation of organics.

The West Goshen Township Sewage Treatment Plant operated consistently within the guidelines of its NPDES permit during 1995. Although the treatment plant is not currently experiencing flows beyond its rated hydraulic capacity, the anticipated growth in the contributing areas, particularly West Goshen Township, Westtown Township, and West Whiteland Township, warranted the commencement of design work for the expansion of the facility.

The operation and maintenance program performed by the West Goshen Township treatment plant personnel has been effective in maintaining continuity in the operation of the facility. Each day, all of the pumping stations in the system are inspected. Equipment checks are performed on a routine basis and repairs are generally performed in-house when possible. A rather extensive supply of spare parts is stocked at the treatment plant. A maintenance shop with selected tools and equipment has been set up at the treatment plant to enable personnel to perform most repairs.

All treatment units are inspected daily to ensure that they are in good working order. Samples are taken at various points in the treatment process to determine the effectiveness of the units in providing treatment.

4. Details of scheduled or in-progress upgrading or expansion of treatment facilities and the anticipated completion date of the improvements. Also discuss the compatibility of the rate of growth to existing and proposed WWTF.

The upgrade and expansion are being proposed as part of the planning. The schedule is related to county and state approvals and permits. Construction is anticipated to begin in late 1997 or early 1998 and be completed in approximately 2 years.

The total of the flows from the anticipated growth rate of development and existing flows should not exceed the planned construction period. However, anticipated planning and build-out of developments will demonstrate in the wasteload management report a three month maximum hydraulic loading above the current 4.5 mgd permitted capacity.

5. A detailed description of operation and maintenance requirements and the status of past and present compliance with these requirements and any other requirements relating to sewage management programs.

The treatment plant has operated within the limits of its discharge requirements. However, the 1995 Chapter 94 - Wasteload Management Report displays that there is a potential for hydraulic and organic overloads within the next five years which initiated the need for closer scrutiny of planning module approvals, inflow and infiltration corrections and ultimately new planning under the Act.

Much work has been accomplished by the West Goshen Township Treatment Plant staff which has delayed the need to upgrade/expand the plant capacity.

To conserve valuable plant capacity by reducing infiltration and inflow in the sewerage system, West Goshen Township purchased a sanitary sewer video inspection system. Also a comprehensive Infiltration and Inflow (I&I) reduction program has been implemented, as well as in the other contributing municipalities. In-depth I&I information and measures to be taken can be found in the Chapter 94 Report in APPENDIX A.

6. Ultimate disposal areas, if other than stream discharge (land application) and any applicable groundwater limitations.

The existing wastewater treatment plant discharges by stream discharge. No other disposal methods are currently viable.

B. Identify, map and describe areas that utilize individual and community on-lot sewage disposal and retaining tank systems in the planning area including:

1. Type of systems in use.

According to DEP Chapter 71, Section 71.1, an individual on-lot sewage system uses "a system of piping, tanks or other facilities for collecting, treating and disposing of sewage into a subsurface absorption area or retaining tank". Approximately 200 dwellings in West Goshen Township utilize individual on-lot sewage disposal systems. The total flows being treated by OLDS by residences within the Township is estimated to be 50,000 gallons per day based on usage of 250 gallons per day per dwelling. Of course, the Department of Environmental Protection requires a design flow of 400 gallons per day minimum for each dwelling when sizing new or upgrading subsurface disposal areas. This equates to an on-lot wastewater generation rate of 80,000 gallons per day for the entire Township.

The less densely populated areas of West Goshen not served by the sanitary sewerage system utilize individual on-lot disposal systems, as shown in EXHIBIT 2-14.

A community on-lot disposal system was utilized at the Brookfield Development. The seepage bed was phased out in 1990 with the completion of the Northeast Interceptor.

There are no retaining (holding) tanks currently known being utilized in West Goshen Township. DEP Chapter 71 defines a holding tank as "a tank, whether permanent or temporary, to which sewage is conveyed by a water carrying system".

2. A description of documented and potential public health pollution, and operational problems (including malfunctioning systems) with the systems, including violations of local ordinances, the Sewage Facilities Act, the Clean Streams Law or regulation promulgated thereunder.

In an effort to determine the incidence of on-lot wastewater disposal system malfunctions, the Sewage Enforcement Officer of Area 2, Chester County Health Department was contacted and asked about a listing or map of the specific locations of any OLDS malfunctions going as far back as records were available. The Department could not identify any reports of malfunctions in West Goshen Township at the present time.

Some possible reasons for on-lot disposal system malfunctions are marginal soils, potential surface drainage malfunction, and small lots. These factors are the result of improper siting and system overuse. Many failures can be traced to older systems that have exceeded their useful life expectancies.

It is not the policy of most Sewage Enforcement Officers to actively seek out malfunctioning OLDS as a matter of daily routine. Ordinarily, an inspection of an OLDS is initiated by a complaint being filed by a neighbor or other resident of the municipality to the Sewage Enforcement Officer. Therefore, OLDS malfunctions may be more prevalent than the permitted repairs indicate.

The potential always exists for problems associated with public health concerns. Such problems are evidenced by the presence of fecal coliform bacteria in groundwater samples having been obtained from drinking water sources. However, there have been no documented cases of recent public health problems associated with OLDS malfunctions nor has there been confirmed water or vector borne disease outbreaks.

Potential on-lot disposal system malfunctions could be expected in the following areas:

- o Flood prone areas - See EXHIBIT 2-2
- o Wetlands - See EXHIBIT 2-3

- Limestone geology See EXHIBIT 2-12
- Unsuitable soils - See EXHIBIT 2-10
- Potential Malfunctions - See EXHIBIT 2-15

None of the soils in the Township have limitations of less than moderate. However, with ongoing technological developments and experimentation OLDS can be specifically designed and installed to compensate for limitations of the soils that are not insurmountable.

To the best knowledge of West Goshen Township, its officers and employees:

- there are no known on-lot disposal systems which are receiving flows in excess of their design flows,
- there are no sites currently being permitted where a wrong system for site conditions is in use, although many systems have previously been installed where soil conditions are poor,
- no wildcat sewers that discharge illegally are located anywhere within the Township,
- no boreholes are located within West Goshen Township,
- there are no sites where surface runoff or inflow of stormwater is causing a hydraulic overload to the on-lot disposal system, and
- no obtainable complaints have been filed with the County Health Department's or with the West Goshen Codes Enforcement Officer regarding unpermitted discharge to streams, drainage-ways or groundwater, and if a complaint was filed, the system had been repaired to the satisfaction of the Sewage Enforcement Officer.

It is extremely difficult to predict when and where an on-lot disposal system may malfunction due to improper maintenance. However, the Township is aware that such malfunctions may occur. It may be possible that any previous malfunction may have been caused by lack of proper maintenance or lack of proper maintenance may

have contributed to the reason for the malfunction, but as mentioned previously, all known malfunctioning systems have been repaired to the satisfaction of the County's sewage enforcement officer.

The County Health Department SEO program utilized by West Goshen Township maintains the files on the siting, installation and repairs of individual on-lot disposal systems.

Information is given in APPENDIX E regarding water conservation practices to extend the life of on-lot disposal systems.

3. A comparison of the types of on-lot sewage systems installed in an area with the types of systems which are appropriate for the area according to soil, geologic conditions, topographic limitations, sewage flows, and Title 25 Chapter 73 (relating to standards for sewage disposal facilities).

The lack of information as detailed above makes it impossible to accurately make a comparison. It is possible that on-lot sewage systems installed before 1972 may have been inadequately constructed with the relation to soils, etc.

4. Conducting a well water survey to identify possible contamination by malfunctioning on-lot sewage disposal systems. Approximately 15% of the wells should be studied.

A preliminary hydrogeological analysis of ground water quality is conducted by the Chester County Health Department for newly drilled wells. If a well had levels higher than that accepted by Chester County, the condition had to be corrected until the well water quality was within an acceptable range. TABLE 2-20 portrays the testing results.

TABLE 13

WATER QUALITY TESTING RESULTS **WEST GOSHEN TOWNSHIP, CHESTER COUNTY, PENNSYLVANIA**

LOCATION	LOT #	DEPTH OF PUMP (feet)	TEST #1 NITRATE NITROGEN (milligrams per liter)	TEST #2 NITRATE NITROGEN (milligrams per liter)	TEST #3 NITRATE NITROGEN (milligrams per liter)	TEST #4 TOTAL COLIFORM COUNT (col. per 100 ml)	TOTAL BACTERIA COUNT	COMMENTS
Ashford Subdivision	7	98	10.8	1.34		1		Has public sewers,
Ashford Subdivision	18	98	8.23			<1	700	new subdivision
Ashford Subdivision	1	155	15.1	1.51		<1	4900	"
Ashford Subdivision	23	235	14.8	1.02		<1	45	" " "
Oak Hill	18	210	9.4			<1	300	"
Greenhill Avenue	2350		3.6			<2		" " "
Cricklewood		150	10.9		2.11	<1	4	"
Cricklewood	7	185	6.3			<1	<1	" "
Cricklewood		150	7.4			<1	TNTC	"
Cricklewood	4	260	4.8			<1	3	Public Sewer
Cricklewood		150	6.8			<1	2	"
1021 Fernhill Rd	280	2.9			<1	500		
Cricklewood	6	150	6.1			0		Public Sewer
Fairmont	11	138	4.2			<1	10	"
Fairmont	10	125	3.2			<1	12	"
Fairmont	4	205	1.6			<1	500	"
Fairmont	12	85	3.5			<1	2	"
Fairmont	1	150	3.1			<1	34	"
Fairmont		115	2.5			<1	700	"
Fairmont	2	50	1.5			0		
Turner Avenue	1	85	2.5			0		
296 Sunset Hollow	430	3						Public Sewer
Sheridan Dr.	230	4.5			<1	<1		" "
North New St.	41	130	3			<2		
North New St.	4	60	8			<2		
Clover	15	188	0.5			<2		
Caswallen	58	100	3.1			0		
Nottingham Drive	100	18.8	12.9	1.29	<1	8		Public Sewer
Briton Circle	4	80	5.2			<1	300	
Nottingham Drive	1	100	7.7			<1	85	
126 Greenhill Rd.	6	100	1			0		
101 Snyder Ave.	100	6.4			<1	900		"
200 Spring Lane	80	3.1						"
Howard Ave/Yarnell	1	100	<1			0		"
Union Street	150	3			<2			"
Nottingham Road	4	125	1			0		" "
409 Greenhill		75	2			<1		"
Greenhill/Briton Cir	2	195	2.2			<1		"
Greenhill/Chamberlin	A	180	8.58			0		
Gillmore	B	175	6.2			0		
612 Green/Woodcrest	22	115	1.3			0		Public Sewer
Rt. 3		155	1.7			0		
Greenhill/Chamberlin	C	145	0			<1		
319 Westtown Road		100	3.6			0		
Rt. 100, Flack Div.	2	75	2.1			0		
833 W. Chester Pike			11.3			0		Public Sewer
Briton Circle	13	50	4.3			0		" "

Source: Chester County Health Department, 1989.

- NOTES: o Nitrate Nitrogen is reported in milligrams per liter.
 DEP limit of 10 mg/L.
 o Total Coliform is reported in colonies per 100 milliliters.
 DEP limit of 1 col/100ml.
 o TNTC= Too numerous to count

The logical first step would be to identify the contributing sources of the contamination and quantify the amount of contamination from each source. Nitrate-nitrogen can come from agricultural operations. However, nitrate-nitrogen can also come from the breakdown of human waste as it is carried by water from septic tanks into the subsurface drain fields and into the soil and groundwater. The concentration of nitrate-nitrogen levels acceptable to DEP is less than 10 mg/l.

In agricultural areas, certainly no policy is going to be pursued to remove the nitrate-nitrogen sources from the farmland, although there are some efforts to control the contaminated runoff from these farm lands as witnessed by the legislation passed in an effort to clean up the Chesapeake Bay. Therefore, it can be expected that initial controls will be directed at eliminating new on-lot wastewater disposal systems, especially in areas presently having elevated nitrate-nitrogen levels.

According to the COWAMP report, "Nitrogen nitrates are water soluble compounds that pass very easily through the human system. Once they enter the body, they are converted into nitrites, which reduce the ability of the blood to carry oxygen. This affliction is most common in infants and is called the 'blue baby' disease. Nitrites from sewage, industrial discharge and urban and agricultural runoff may cause algae blooms in lakes and streams thereby depleting oxygen for aquatic life and making water unsuitable for recreation or drinking."

Total coliform, with an acceptable limit of less than 1 colony per 100 ml, is an indication of either animal or human fecal matter or bacteria present in soil and vegetation.

C. Identify wastewater sludge and septage generation, transport, and disposal methods as it relates to sewage facilities alternative analysis including:

1. Locations of sources of wastewater sludges or septage. (Septic tanks, Holding tanks, WWTF)

Sludge generated at the West Goshen Sewage Treatment Plant is anaerobically digested and filter pressed at the plant in the amounts shown in TABLE 15.

Septage sludges are generated by the on-lot sewage disposal systems scattered throughout the Township. The septage sludges are typically pumped out and hauled by private contractors to public and private treatment facilities. One of the largest haulers in the area is Eldredge, Inc. whose facility is located in West Goshen Township. Septage sludges are not accepted at the West Goshen Sewage Treatment Plant.

2. Quantities of the types of sludges or septage generated.

The past five year sludge production at the wastewater treatment facility is as follows:

TABLE 14

**SLUDGE PRODUCTION AT THE STP
WEST GOSHEN TOWNSHIP, CHESTER COUNTY, PENNSYLVANIA**

<u>YEAR</u>	(20% ±) WET <u>TONS</u>
1990	2051.38
1991	1739.49
1992	1846.71
1993	1935.02
1994	1917.22
1995	1854.65

Septage sludge generation is unknown.

3. Present disposal methods, locations, capacities, and transportation methods.

The Lanchester Sanitary Landfill located in Honeybrook, operated by the Chester County Solid Waste Authority, disposes of West Goshen's sludge and has accepted all sludge taken there to date. The sludge is disposed of in a different pit than other municipal solid waste, but is treated in generally the same manner. It is hauled in dumpsters to the landfill by an outside transportation firm. In 1995, 100,000 gallons of digested sludge was land applied in liquid form through a contract with BFI. This was done as an temporary alternative to disposal at the landfill.

IV. Future Growth and Development

A. Delineate and describe the following through map, text and analysis:

1. Areas with existing development or plotted subdivisions. Include the name, location, description, total number of EDU'S in the development, total number of EDU'S currently developed, and total number of EDU's remaining to be developed (include time schedule to be developed).

The following TABLE 15 is a list of many of the known approved major subdivisions within West Goshen Township. The locations are plotted in EXHIBIT 2-5 and areas of development are shaded in EXHIBIT 2-5A.

TABLE 15

MAJOR SUBDIVISIONS WEST GOSHEN TOWNSHIP, CHESTER COUNTY, PENNSYLVANIA

#	DRAINAGE AREA	YEAR APPR.	YEAR COMP.	SUBDIVISIONS	ACRES	LOTS/USE
1	BR-1, WW-1			Aldergate	51.74	87 Residential
2	BR-1	1988	COMP.	Ashford	38.56	44 Residential
3	EBCC-5			Baxter Apartments		108 Apartments
4	TR-1			Baxter Apartments	9	Apartments
5	SBR-1	1991		Baxter Building Offices	2.5	Offices
6	TR-1			Bella Vista	27	Residential
7	GC-3	1985		Bernay Woods	49.08	53 Residential
8	GC-1			Better Housing Corporation		8 Residential
9	WW-1			Birchlam Development		14 Residential
10	GC-2	1986		Boy Scouts of America	11.89	12 Lots
11	EBCC-1	1988		Brandywine Business Park	7.3	3 Industrial
12	EBCC-1,2	1985, 88		Brandywine Industrial Park		12 Industrial
13	EBCC-1			Brandywine Lakes	50.1	6 Industrial
14	EBCC-1			Brinton Woods	15.5	Residential
15	EBCC-1	1987		Brookfield, Phase I	32	46 Residential
16	EBCC-1	1990		Brookfield, Phase II		14 Residential
17	EBCC-1	1991		Capelli & Chander	14.63	23 Residential
18	TR-1			Caswallen Development		Residential
19	EBCC-3	1984		Cavanaugh, J.A. Subdivision		2 Residential
20	EBCC-1	1982		Centrum Industrial Park	15.65	5 Industrial
21	BR-2, TR-1	1988		Cheshire	108	80 Residential
22	GC-1	1987		Ciccarone, John		3 Comm/Ind.
23	GC-2, SBR-1	1986		Clipper Mills	9.79	17 Residential
24	BR-1, TR-1	1984		Clover Lea	39.79	47 Residential
25	BR-1, BR-2	1986		Clover Ridge	4.5	4 Residential
26	SBR-1			Concord Manor	10	Residential
27	EBCC-1	1988		Crickle Wood	10.5	11 Residential
28	GC-2			D'Amico-Boye Apartments		20 Apartments
29		1986		Darlington Woods	3.72	6 Residential
30	GC-3	1986		Denney Reyburn	41.92	6 Industrial
31	GC-2	1988		Embassy Court	1.5	11 Commercial
32	GC-1	1987		Everett Partners		3 Commercial

#	DRAINAGE AREA	YEAR APPR.	YEAR COMP.	SUBDIVISIONS	ACRES	LOTS/AUSE
33	GC-2, GC-3	1987		Fairmont	10.65	13 Residential
34	SBR-1, SBR-2			Falconcrest Development		192 Residential
35	EBCC-1	1984		Fresh Meadows	51.41	93 Residential
36	TR-1			Gary Soch Property		Residential
37	TR-1	1986		Goshen Commons	11.5	114 Apartments
38	EBCC-1	1985		Goshen Crest	86.24	125 Residential
39	SBR-2	1986		Goshen Crossings	3.4	12 Commercial
40	GC-3	1991		Goshen Terrace	7.4	40 Apartments
41	GC-3			Grace Kelly Subdivision		No Record
42	BR-1, BR-2	1976		Greet Oaks		23 Residential
43	EBCC-1	1991		Green Hill Farms	27.96	43 Residential
44	EBCC-1			Green Hill Terrace	14	Residential
45	TR-1	1987		Greystone	24.31	35 Residential
46	GC-2	1988		H & L Enterprises, Inc.		12 Comm/Ind.
47	TR-1			Hamilton Woods	65	55 Residential
48	BR-1, WW-1	1987		Hamlet Hill (Harvest Hill)	35.04	93 Residential
49	TR-1	1989		Hough/Loew Associates		3 Industrial
50	TR-1	1990		Huffer, Anna	4.6	4 Residential
51	SBR-1	1985		Hyllwynd	11.55	13 Residential
52	EBCC-1, TR-1			J.R. Vishneski Ind. Park	11	Industrial
53	EBCC-2	1984		Jones, W.T.	6.54	4 Residential
54	EBCC-3			Kettering Subdivision		No Record
55	TR-1	1987		Kirby Woods	26.06	43 Residential
56	EBCC-1			Knollwood		79 Residential
57	EBCC-2	1959		Lynwood Development		75 Residential
58	EBCC-1, 2	1988		Marcellus/Yarnall	5.59	8 Residential
59	TR-1	1985		Marino, Robert O.	11.24	15 Residential
60	GC-2	1984		Matlack Ind.Center-H&L Sub.	40.68	13 Industrial
61	GC-1			Monticello Inv. Inc. Apt	5	62 Apartments
62	TR-1			North Hills		Residential
63	GC-2	1984		Piccone	5.86	8 Residential
64	GC-2, SBR-1			Pine Valley, Section 2	13	Residential
65	SBR-1			Pohlig Brothers	4.4	
66	PR-1	1963		Pomona Hills Development		68 Residential
67	EBCC-4			Regents Walk Apartments	21	Apartments
68	SBR-1			Ridgewood Farm, Section A	20	43 Residential
69	GC-3			Ridgewood Farm, Section B	9.5	Residential
70	GC-3			Ridgewood Farm, Section D	4	8 Residential
71	GC-3			Ridgewood Farm, Section E	35	65 Residential
72	SBR-1			Ridgewood Farm, Section F	20.4	Residential
73	BR-1	1970		Scot's Grove	50	40 Residential
74	EBCC-4	1987		Seven Springs	2.81	12 Townhouses
75	EBCC-4	1985		Spring Court	5.65	10 Residential
76	EBCC-5			Spring Valley Farms, Sect.1	12	Residential
77	EBCC-5			Spring Valley Farms, Sect.1	11	Residential
78	EBCC-4			Spring Valley Farms, Sect.2	12	Residential
79	GC-3			Stony Ridge	9	Residential
80	SBR-1			Stonybrook	75	Residential
81	GC-3			Treadway Inn		102 Motel Units
82	SBR-1	1966		Twin Bridges- E.J. Walsh		44 Residential
83	EBCC-1	1988		Village of Shannon	58.2	349 Townhouses
84	TR-1			Viv Carlos, Inc.	52.4	81 Lot Expansion
85	BR-1			Waltz Estate	28	40 Residential
86	SBR-1			Welsh Subd/Wilson Tract	18	Residential
87	EBCC-1	1990		West Goshen Business Park	60	13 Industrial
88	EBCC-5			West Goshen Traylor Park	10	46 Mobile Homes
89	GC-1	1987		Westbrook Center	2.07	6 Commercial
90	SBR-1	1964		Westtown Acres		47 Residential
91	GC-2	1987		Westtown Auto Park	59.21	8 Industrial
92	SBR-2	1972		Westtown Knoll	75	95 Residential
93	SBR-1	1988		Wildflower	7.06	7 Residential
94	SBR-1	1990		Wildflower II	6.14	5 Residential
95	GC-3	1985, 90		Willowbrook		Industrial
96	BR-2	1990		Wilnor Estates	19.12	14 Residential
97	SBR-1	1987		Wilnor Woods	19.75	31 Residential
98	EBCC-1, 3			Woodcrest Area	25	Residential
99	EBCC-1, 2			Woodside Subdivision		Residential
100	BR-1			Woodstock		15 Residential
101	TR-1	1991		Yarnall & Stern	2.9	4 Residential
102	GC-3	1989		Yarnall, David B.	8.13	11 Residential

Source: West Goshen Township Records.

The following TABLE 16 shows the sewer extensions constructed, permitted and/or proposed in West Goshen Township, according to the Wasteload Management Report.

TABLE 16

**SEWER EXTENSIONS TO DEVELOPMENTS
WEST GOSHEN TOWNSHIP, CHESTER COUNTY, PENNSYLVANIA**

<u>Development</u>	<u>EDU's</u>	<u>Flow</u>	<u>% Comp.</u>	<u>% Flow</u>
Cheshire Knoll	82	28,700	98%	28,126
Hamilton Woods	55	19,250	38%	7,315
Goshen Commons	116	29,000	86%	24,940
Wildflower Subdivision	7	2,450	86%	2,107
Kelly Property (Village of Shannon)	349	78,525	37%	29,054
Brandywine Knoll (formerly Aldergate)	88	30,800	86%	26,488
American Legion (Wilnor Estates)	15	5,250	47%	2,468
Drury Group	10	4,125	0%	0
Fox Knoll	25	8,750	40%	3,500
DiRocco Brothers	9	3,150	55%	1,732
Green Tree	13	3,400	100%	3,400
Green Hill Area (existing homes)	103	6,050	72%	4,356
Waltz Tract	13	3,575	62%	2,216
Lasko	18	4,950	78%	3,861
Sunset Hollow Road	10	2,750	0%	0
Merion Circle	7	1,925	43%	828
Crosspointe	33	9,075	0%	0
Applegate	121	33,275	0%	0
Boston Chicken	2	700	0%	0
Rock Church	2	700	0%	0
Burke Road	7	2,450	0%	0
Brandywine Industrial Park	13	4,556	23%	1,048
Viv Carlas, preliminary	<u>81</u>	<u>28,350</u>	0%	<u>0</u>
Totals	1,179	311,756		141,439
Total Flows Remaining				173,317

Source: 1995 Chapter 94 Report, Municipal Wasteload Management Plan, West Goshen Sewer Authority, January 1996.

2. Land use designations established under the Pennsylvania Municipalities Planning Code, including residential commercial and industrial.

The WEST GOSHEN TOWNSHIP REVISED ZONING ORDINANCE OF 1992 (and subsequent amendments) evaluates the growth potential within the various zoning districts in order to provide a guideline for manageable development. The zoning is adequate and there are no future plans to change land use designations.

The West Goshen Township Industrial Waste Ordinance was submitted to the Department of Environmental Resources in the 1983 Chapter 94 Report. In 1996, the Township adopted amendments to their current ordinance to comply with the National Pretreatment Program. The Township has developed and has continued to monitor and enforce a pretreatment program that limits the type and quantity of industrial wastes being discharged into the collection system. The pretreatment program has been effective in reducing the heavy metal loading on the treatment plant. This has reduced the need to add chemicals or other treatment units and processes to remove undesired contaminants. TABLE 17 lists industries within West Goshen Township which have been disconnected and/or have been required to install sampling manholes.

TABLE 17

**INDUSTRIAL MONITORING
WEST GOSHEN TOWNSHIP, CHESTER COUNTY, PENNSYLVANIA**

1. Ore-Ida Foods- Sampling Manhole & Grease Removal Systems
2. Lasko- Sampling Manhole and Flow Meter
3. Metallurgical Products- Sampling Manhole
4. Bally-more- Sampling Manhole
5. MetPro Corporation- Sampling Manhole
6. Unipac- Sampling Manhole
7. Schram- Sampling Manhole
8. Harowe Servo Controls- Sampling Manhole and Samplers
9. United Parcel Service- Sampling Manhole
10. Cephalon, Inc.- Sampling Manhole
11. Organon Teknika Corp.- Sampling Manhole
12. East Goshen Industries- CFM Technologies

Source: Pretreatment Program - 1995

To the best knowledge of West Goshen Township, its officers and employees, there are no known unpermitted collection and disposal facilities in operation or existing within the Township. This would include any wildcat sewers, illegal stream discharges, or boreholes used for collection and disposal.

3. Future growth areas and population and EDU projections for these areas.

The number of building permits issued annually in West Goshen Township over the past ten (10) years can be seen in the following TABLE 18.

TABLE 18

**BUILDING PERMITS
WEST GOSHEN TOWNSHIP, CHESTER COUNTY, PENNSYLVANIA**

<u>YEAR</u>	<u>NUMBER OF PERMITS ISSUED</u>
1986	352
1987	371
1988	464
1989	427
1990	313
1991	311
1992	325
1993	414
1994	351
1995	376

Source: West Goshen Township Records.

This table shows that the number of building permits issued each year seems to remain in the three to four hundreds. However, not all building permits are issued for new construction, but may be for a pool, deck, garage or remodeling.

The number of public sewage connection permits by year is shown in TABLE 19.

TABLE 19

**PUBLIC SEWAGE CONNECTION PERMITS
WEST GOSHEN TOWNSHIP, CHESTER COUNTY, PENNSYLVANIA**

<u>YEAR</u>	<u>NUMBER OF SEWAGE CONNECTION PERMITS</u>
1985	79
1986	166
1987	165
1988	234
1989	363
1990	328
1991	75
1992	81
1993	121
1994	117
1995	144

Source: West Goshen Township Sewer Plant

TABLE 20

DEVELOPABLE SEWER SERVICE AREA LAND, POPULATIONS AND FLOWS WEST GOSHEN TOWNSHIP, CHESTER COUNTY, PENNSYLVANIA

DAILY-FLOW											TOTAL-FLOW					
1995 Flow - West Goshen											1,962,000					
1995 Flow - East Goshen											867,000					
1995 Flow - West Whiteland											390,000					
1995 Flow - Westtown											225,000	3,444,000				
Year 2000 Flow - West Goshen											2,292,000					
Year 2000 Flow - East Goshen											952,000					
Year 2000 Flow - West Whiteland											570,000					
Year 2000 Flow - Westtown											310,000*	4,124,000				
* Adjusted Westtown's flow for 80,000 gpd treatment plant capacity for JPI development and existing homes experiencing malfunctions.																
Ultimate Flow - West Goshen - by drainage area (See attached color coded maps in Exhibit 3-1).																
Drainage Area	Map Area	Reading	Acres	Undev. Land	Net Acres	Zoning	Units/Acre	Total Units	Persons/Unit	Pop	Average Daily Flow	Drainage Area Total Flow	Running Total Flow			
Existing Flows												3,444,000		3,444,000		
BR-1	A	2.06	189.16	47.29	141.87	R-2	1.00	142	3.0	426	39,015	39,015	3,483,015			
TR-1	B	.78	71.63	17.91	53.72	R-2	1.00	54	3.0	161	14,773					
TE-1	C	.43	39.49	9.87	29.61	R-3	2.42	72	3.0	215	19,708					
TR-1	D	.91	83.56	20.89	62.67	R-3	2.42	152	3.0	455	41,708					
TR-1	E	5.57	511.48	127.87	383.61	R-3	2.42	928	3.0	2,785	255,292					
TR-1	L	.15	13.77	3.44	10.33	R-4	2.42	25	3.0	75	6,875					
TR-1	M	.45	41.32	10.33	30.99	I-2	.50	15	.0	0	40,838					
TR-1	N	.47	43.16	10.79	32.37	I-3	1.00	32	.0	0	87,120					
Subtotal													456,314	3,949,329		
WW-1	F	.90	82.64	20.66	61.98	R-3	2.42	150	3.0	450	41,250	41,250	3,990,579			
EBCC-1	G	.71	65.20	16.30	48.90	R-3	2.42	118	3.0	355	32,542					
EBCC-1	H	.90	82.64	20.66	61.98	R-3	2.42	150	3.0	450	41,250					
EBCC-1	I	1.12	102.85	25.71	77.13	I-1	.25	19	.0	0	52,728					
EBCC-1	J	.68	62.44	15.61	46.83	R-3	2.42	113	3.0	340	31,167					
EBCC-1	K	.89	81.73	20.43	61.29	I-1	.25	15	.0	0	40,838					
Subtotal													197,523	4,188,102		
EBCC-3	P	.48	44.08	11.02	33.06	R-3	2.42	80	3.0	240	22,000	22,000	4,210,102			
EBCC-4	Q	.20	18.37	4.59	13.77	R-3	2.42	33	3.0	100	9,167					
EBCC-4	R	.18	16.53	4.13	12.40	C-4	.25	3	2.0	6	4,094					
EBCC-4	S	.30	27.55	6.89	20.66	C-2	.25	5	.0	0	6,806					
Subtotal													20,057	4,230,159		
EBCC-5	U	.09	8.26	2.07	6.20	C-4	.25	2	2.0	6	2,723	2,723	4,232,882			
GC-1	N	.95	87.24	21.81	65.43	I-3	1.00	65	.0	0	176,963					
GC-1	O	.50	45.91	11.48	34.44	C-2	.25	9	.0	0	12,251					
Subtotal													189,214	4,422,096		
GC-2	Z	.76	69.79	17.45	52.34	I-2	.50	26	.0	0	70,785					
GC-2	1	.32	29.38	7.35	22.04	MP	.50	11	1.0	11	29,940					
GC-2	2	.22	20.20	5.05	15.15	I-2	.50	8	.0	0	21,780					
Subtotal													122,513	4,544,609		
GC-3	X	.10	9.18	2.20	6.98	R-3	2.42	17	3.0	50	4,583					
GC-3	Y	.13	11.94	2.98	8.95	I-2R	.50	4	.0	0	10,890					
GC-3	3A	.80	73.46	18.37	55.10	R-3	2.42	133	3.0	400	36,667					
Subtotal													52,140	4,596,749		
PR-1	V	.12	11.02	2.75	8.26	R-4	2.42	20	3.0	60	5,500	5,500	4,602,249			
PR-3	W	.45	41.32	10.33	30.99	R-3	2.42	75	3.0	225	20,625	20,625	4,622,874			
SBR-1	T	.25	32.14	8.03	24.10	C-4	.25	6	2.0	12	8,168					
SBR-1	3B	.75	68.87	17.22	51.65	R-3	2.42	125	3.0	375	34,375					
Subtotal													42,543	4,665,417		
SBR-2	3C	.40	36.73	9.18	27.55	R-3	2.42	67	3.0	200	18,333					
SBR-2	4	.46	42.24	10.56	31.68	R-3	2.42	77	3.0	230	21,083					
Subtotal													39,417	4,704,834		
Totals													7,534	1,250,832		
Additional Flow Next 10 years- East Goshen														333,000	5,034,834	
Additional Flow Next 10 years - West Whiteland														330,000	5,364,834	
Additional Flow Next 10 years - Westtown														305,000	5,669,834	
Total Estimated Flows in 10 years															5,669,834	

A West Goshen Township map was delineated into the major and minor drainage basins for the purposes of computing existing and proposed sewer flows. From this information flow directions towards pumping stations and accepting contributing flows from outside municipalities was completed. The major drainage basins were as follows:

- 1) BR - Broad Run
- 2) TR - Taylor Run
- 3) WW - West Whiteland
- 4) EBCC - East Branch Chester Creek
- 5) GC - Goose Creek
- 6) PR - Plum Run
- 7) SBR - Stony Brook

A zoning map was overlayed on the drainage map. The existing acreage of undeveloped land for each zoning district within each drainage basin was calculated. From that acreage, under the acres category, the undevelopable land such as waterways, existing and proposed roads, green space, etc. was calculated and placed under the category of Undevelopable Land. This averaged approximately 25% of the open land calculated under Acres.

Based on the Net Acres available for development, the Number of Units Allowed under the current zoning was applied. These units were then compiled for each subdrainage area along with the projected population and subsequently calculated sewage flows per drainage basin.

In the final column, the existing average annual flow for 1995 of 3,444,000 was used as the existing flows from all four municipalities. To this number, the additional potential flows for each drainage area in West Goshen Township were cumulatively added under the column Running Total- Flow. At the bottom of Table 20, the projected 10 year flows for the three other contributing municipalities was totaled to provide an estimated treatment plant capacity need of 5,669,834 gallons per day.

4. Zoning, subdivision regulations; local, county or regional comprehensive plans; and existing plans of a Commonwealth agency relating to the development, use and protection of land and water resources.

The WEST GOSHEN TOWNSHIP REVISED ZONING ORDINANCE OF 1992 (and subsequent amendments) evaluates the growth potential within the various zoning districts in order to provide a guideline for manageable development. The zoning and regulations are adequate and there are no future plans to change land use designations.

5. Sewage Planning required to provide adequate wastewater treatment for areas of the municipality and related to:

a. Five year population and growth impacts on existing and proposed wastewater collection and treatment facilities which support the need for expansions of facilities within the five-year time frame.

The 1995 Waste Load Management Plan (Chapter 94) demonstrates that by utilizing the projected increases from each of the contributing municipalities that the treatment plant will experience hydraulic conditions approaching the existing plant design and overloading conditions for the projected three-month maximum flow.

The following table as illustrated earlier shows the past five-year and projected five-year flows:

TABLE 21

**WASTEWATER FLOWS BY MUNICIPALITY
WEST GOSHEN SEWER TREATMENT PLANT,
CHESTER COUNTY, PENNSYLVANIA**

MUNICIPALITY	RESERVE CAPACITY	(million gallons per day)									
		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
East Goshen Township	1.000	.722	.728	.806	.815	.866	.877	.877	.883	.904	.939
Westtown Township	.230	.147	.150	.151	.152	.225	.228	.228	.228	.228	.225
West Whiteland Township*	.420	.375	.378	.380	.397	.403	.390	.475	.540	.550	.570
West Goshen Township	2.850	2.334	2.345	2.029	2.421	2.529	1.962	2.088	2.228	2.257	2.290
	4.500	3.578	3.469	3.362	3.775	3.985	3.444	3.766	3.876	3.936	4.029

Source: Annual Report of Consulting Engineers on the Operation of the Sewage Treatment Plant and Collection System, West Goshen Township, 1995. The 1995 average flow was 3.444 mgd, the five year projection is estimated from the past five-year average flow of 3.607 mgd.

- * On a temporary basis, West Whiteland has an agreement with West Goshen to utilize up to 150,000 gpd of West Goshen's reserve capacity at the STP. If the total plant flows are over the hydraulic capacity, West Whiteland agrees to and has the current capacity to divert flows to DARA STP.

b. Ten year population and growth impacts on existing and proposed wastewater collection and treatment facilities which support the need for expansions of facilities within the ten-year time frame.

As mentioned above, the existing treatment plant presently needs to be expanded. The expansion has been based on the needs of the treatment plant in increments of 10 and 20 years. The plant expansion is contemplated to be constructed in 2 phases, the first 1.5 mgd and the second 2.0 mgd. The first phase of the expansion is anticipated to cover the ultimate needs of West Goshen Township. Any future needs are likely to be required by the three other contributing municipalities.

V. Alternatives to Provide New or Improved Wastewater Disposal Facilities.

A. Identify alternatives available to provide for new or improved sewage facilities for each area of need including, but not limited to:

1. Regional Wastewater Concepts.

The current municipal facilities are based upon the regional wastewater treatment concept. There is currently only one treatment facility owned by the West Goshen Sewer Authority. West Goshen Township, East Goshen Township, West Whiteland Township and Westtown Township all utilize the treatment plant with allocated capacities. The Township contacted and met with West Chester Borough officials to determine if there was sufficient capacity available in the Borough's Goose Creek and Taylor Run Treatment facilities. The result was that there was insufficient capacity available for the Township's needs in the next decade.

2. The potential for extension of existing municipal or non-municipal sewage facilities to areas in need of new or improved sewage facilities.

The areas being considered for future municipal sewerage service are mainly extensions of the existing service areas. Plans have recently been submitted, approved or are anticipated for proposed developments and are found in TABLE 16.

The only area of the Township with existing residences currently utilizing on-lot disposal systems that were in need of municipal sewerage service due to malfunctions was sewerred in 1995. The Greenhill / Howard Road area (TABLE 16) was provided sewer service in conjunction with the Hamilton Woods development (#47 on TABLE 15), which started construction in 1994.

3. The potential for the continued use of existing municipal or non-municipal sewage facilities through one or more of the following:

- a. Repair.**
- b. Upgrading.**
- c. Improved operation and maintenance.**
- d. Other applicable actions that will resolve or abate the identified problems.**

The Township plans to utilize the existing treatment facility as the method to provide the treatment and disposal capacity to meet the needs associated with new development. The design capacity of the plant is 4.5 mgd, and the existing average daily flow is approximately 3.7 mgd, or 82% of capacity. This allows for restricted development within the Township and adjoining areas unless an alternative solution is developed. It is proposed that the existing West Goshen Sewage Treatment Plant be expanded from 4.5 mgd to initially 6 mgd and possibly 7.5 or 8 mgd in a second phase. TABLE 21 is a summary of the existing and future drainage area flows to the treatment plant. As with the previous pumping station analysis, the corresponding map of areas is located in APPENDIX F.

4. The need for new community sewage systems.

With the regional treatment plant concept and the proximity of the entire Township to the public sewerage collection system, the need for a new community sewerage system is not considered a viable option in the Township.

5. The construction of new wastewater treatment facilities.

WASTEWATER TREATMENT PLANT CAPACITY

Various alternatives for wastewater treatment were evaluated for the preparation of this report. There were three alternatives of varying capacities and processes at the existing West Goshen Sewage Treatment Plant and five primary alternatives for treatment in the Taylor Run Drainage Area. In general, the capital cost to provide wastewater treatment capacity in the Taylor Run Drainage Area was considerably higher than the capital cost to expand at the existing treatment plant site. A summary of each alternative for treatment in both areas is listed below along with a short description of the alternative.

Upgrade and Expansion of Facilities at the Existing Treatment Plant Location

- | | |
|-------------------|--|
| ALTERNATIVE A-1 - | Upgrade and Construct Additional Expansion of 1.5 MGD Wastewater Treatment Capacity to Total 6.0 MGD using Existing Process. |
| ALTERNATIVE A-2 - | Upgrade and Construct Additional Expansion of 2.5 MGD Wastewater Treatment Capacity to Total 8.0 MGD using Existing Process. |
| ALTERNATIVE B-1 - | Upgrade and Construct a 6.0 MGD Sequencing Batch Reactor Wastewater Treatment Facility. |
| ALTERNATIVE B-2 - | Upgrade and Construct an 8.0 MGD Sequencing Batch Reactor Wastewater Treatment Facility. |
| ALTERNATIVE C-1 - | Revise Existing Plant to Provide Dual Treatment Processes and Expand 1.5 MGD to a Total 6.0 MGD Capacity. |
| ALTERNATIVE C-2 - | Revise Existing Plant to Provide Dual Treatment Processes and Expand 2.5 MGD to a Total 8.0 MGD Capacity. |

Expansion of Facilities at Alternative Locations in the Township and outside the Township:

ALTERNATIVE D-1	Purchase Capacity At Borough's Taylor Run Treatment Plant.
ALTERNATIVE D-2 -	Construct New 1.6 MGD Wastewater Treatment Facility Adjacent to Taylor Run Pumping Station.
ALTERNATIVE D-3 -	Construct New 1.6 MGD Wastewater Treatment Facility on Jerrehian Tract.
ALTERNATIVE D-4 -	Construct Wastewater Treatment Lagoons For 1.6 MGD Capacity for Spray Irrigation On Golf Course Property.
ALTERNATIVE D-5 -	Construct A 1.6 MGD or 2.4 MGD Wastewater Treatment Facility Near Confluence Of Brandywine Creek And Taylor Run.

The flows utilized in the calculations for treatment capacity in the Taylor Run area included both the existing and projected flows from West Whiteland Township as well as West Goshen Township. Alternative D-5 which had a treatment facility at the confluence of Taylor Run and the Brandywine Creek also included capacity for a portion of the drainage area in East Bradford Township. Besides the higher initial capital costs, all of the treatment alternatives in this drainage area are subject to close scrutiny by the Delaware River Basin Commission, DEP and numerous environmental groups. This is not to say that a treatment facility cannot be permitted in this area, but is meant to alert the Township that the Brandywine Creek is a more environmentally sensitive area than Goose Creek, a tributary to the Chester Creek, where the existing sewage treatment plant effluent is currently discharged. Another drawback to this area is the need to purchase additional land which for several of the alternatives is located in an adjoining municipality. The purchase cost of the land in addition to securing the necessary rights of way for the sewer lines can often be a lengthy procedure.

At the existing sewage treatment plant on South Concord Road, three primary alternative treatment processes were investigated. Due to the existing plant layout, especially the tank configurations, there were few options on the types of treatment processes that could be utilized to expand the facility to either 6 MGD or 8 MGD from the current capacity of 4.5 MGD. For two of the alternatives investigated, a similar process was proposed. The primary difference between the two is the size of the new tanks and equipment to be installed and/or the increased height of the existing trickling filters. In essence, Alternatives C-1 and C-2 were to split the existing treatment facility into two distinct treatment processes. Both processes would be capable of treating half the projected flow. The existing trickling filters would be converted into biological packed towers that are filled with synthetic media, instead of the existing rock. The other treatment process would utilize the aeration tanks with the activated sludge process. Only two new primary clarifiers would be required to make this a complete process train. The other major proposed tanks would be the equalization facility with a new grit removal system through which all the flow into the plant would be diverted. New raw wastewater pumps would be supplied along with a new wet well since the existing wet well cannot handle any additional capacity. There are also changes required in the piping and electrical systems.

Installing SBR tanks in place of the existing trickling filter was looked at for both 6.0 MGD and 8.0 MGD capacities (Alternatives B-1 and B-2). Besides the higher capital costs there were concerns with changing the treatment process, potential odors, treatment during construction, etc.

An expansion to 6 MGD, using the existing process, that would cover the ultimate build out of West Goshen Township is estimated to have a construction cost of approximately \$8.5 million. In order to expand the facility to include the projected treatment plant requirements of the ultimate flows from the current contributing municipalities, it is estimated that the expansion to 8 MGD will have a construction cost of \$15.2 million dollars.

It is recommended that the Township approve the treatment plant Alternative A-1 which is the expansion to 6 MGD at the current wastewater treatment plant site utilizing the existing treatment process. This will allow West Goshen Township to keep the additional capital costs lower and reduce the overall effect of the debt service. Costs for the contributing municipalities would also be lower by expanding

the facility in phases rather than the ultimate plant capacity in a single construction phase.

This plan must be adopted by the West Goshen Township Board of Supervisors and submitted to various agencies for their review and comments as well as the existing contributing municipalities. A public hearing must also be advertised and held. A thirty day comment period after the hearing is required. Any written comments submitted on the Plan should be incorporated into the Plan.

WASTEWATER TREATMENT FACILITIES ALTERNATIVES AT THE EXISTING PLANT LOCATION

ALTERNATIVE A-1 - Upgrade and construct additional expansion of 1.5 MGD wastewater treatment capacity to total 6.0 MGD using existing process.

PROS

- a. The Authority already owns the site which has adequate space for expansion.
- b. The existing treatment facility can remain in normal operation during much of the construction period.
- c. With existing facilities there is a cost savings as most of the existing units and processes are to be utilized in the upgraded/expanded plant.
- d. The operators already know their existing plant process and the learning curve for the upgraded/expanded facility should be minimal.
- e. The entire site has been disturbed by previous construction. Even though the site had hydric soils at one time, they are disturbed. No significant environmentally sensitive areas are located near the facility.
- f. The capital cost of this alternative is less than the other alternatives at the plant.

CONS

- a. The technology utilized is not the most advanced treatment process.
- b. There will be some disruption of treatment effectiveness and the operators will have to contend with the contractor performing work.

ALTERNATIVE A-1
UPGRADE AND CONSTRUCT ADDITIONAL EXPANSION
OF 1.5 MGD WASTEWATER TREATMENT CAPACITY TO
TOTAL 6.0 MGD USING EXISTING PROCESS

ESTIMATED CONSTRUCTION COSTS

<u>DESCRIPTION</u>	<u>6.0 MGD</u>
1. New Headworks, Equalization Facility (25% of flow)	\$3,100,000
2. Modify Primary Distribution Box	0
3. New Primary Clarifier	0
4. Modify Trickling Filter Distribution Box	50,000
5. Replace Trickling Filter Media, Modify Tanks	950,000
6. New Aeration Tank	475,000
7. Modify Final Clarifier Distribution Box	100,000
8. New Final Clarifier (70' Diameter)	500,000
9. Sludge Handling Facilities including a New Belt Filter Press, Sludge Storage, 2 New Anaerobic Digesters, Pump and Piping modifications, etc.	0
10. Additional Garage/Storage Space Lost to New Belt Filter Press in Existing Garage	0
11. Blowers, Piping, etc.	75,000
12. Additional Chlorination/Dechlorination Facilities	0
13. Interunit Piping	250,000
14. Site work, Paving, Fencing, Demolition, etc.	200,000
15. Electrical	350,000
16. Plumbing	50,000
17. HVAC/Mechanical	100,000
 SUBTOTAL CONSTRUCTION COSTS	 \$6,200,000
10% CONTINGENCY	<u>620,000</u>
 TOTAL ESTIMATED CONSTRUCTION COSTS	 \$6,820,000
PROJECT RELATED COSTS	<u>1,705,000</u>
 TOTAL ESTIMATED PROJECT COSTS	 \$8,525,000

NOTE: Cost Estimates Based on 1996 Conditions.

ALTERNATIVE A-2 - Upgrade and construct additional expansion of 2.5 MGD wastewater treatment facility to total 8.0 MGD using existing process.

PROS

- a. The Authority already owns the site which has adequate space for expansion.
- b. The existing treatment facility can remain in normal operation during much of the construction period.
- c. With existing facilities there is a cost savings as most of the existing units and processes are to be utilized in the upgraded/expanded plant.
- d. The operators already know their existing plant process and the learning curve for the upgraded/expanded facility should be minimal.
- e. The entire site has been disturbed by previous construction. Even though the site had hydric soils at one time, they are disturbed. No significant environmentally sensitive areas are located near the facility.

CONS

- a. The technology utilized is not the most advanced treatment process.
- b. There will be some disruption of treatment effectiveness and the operators will have to contend with the contractor performing work.
- c. The cost would be considerably higher than Alternative A-1 due to the need to expand the sludge handling facilities, additional treatment units, etc. The contributing municipalities could not initially afford the debt service for the additional 2.0 MGD capacity.
- d. The construction period would be much longer due to the additional units required to be constructed and modifications/additions to the existing facilities.

ALTERNATIVE A-2
UPGRADE AND CONSTRUCT ADDITIONAL EXPANSION
OF 2.5 MGD WASTEWATER TREATMENT CAPACITY TO
TOTAL 8.0 MGD USING EXISTING PROCESS

ESTIMATED CONSTRUCTION COSTS

<u>DESCRIPTION</u>	<u>8.0 MGD</u>
1. New Headworks, Equalization Facility	\$3,560,000
2. Modify Primary Distribution Box	50,000
3. New Primary Clarifier	550,000
4. Modify Trickling Filter Distribution Box	50,000
5. Replace Trickling Filter Media, Modify Tanks	950,000
6. New Aeration Tank	850,000
7. Modify Final Clarifier Distribution Box	100,000
8. New Final Clarifier (90' Diameter)	750,000
9. Sludge Handling Facilities including a New Belt Filter Press, Sludge Storage, 2 New Anaerobic Digesters, Pump and Piping modifications, etc.	2,050,000
10. Additional Garage/Storage Space Lost to New Belt Filter Press in Existing Garage	250,000
11. Blowers, Piping, etc.	100,000
12. Additional Chlorination/Dechlorination Facilities	150,000
13. Interunit Piping	350,000
14. Site work, Paving, Fencing, Demolition, etc.	375,000
15. Electrical	575,000
16. Plumbing	125,000
17. HVAC/Mechanical	<u>250,000</u>
 SUBTOTAL CONSTRUCTION COSTS	 \$11,085,000
10% CONTINGENCY	<u>1,108,500</u>
 TOTAL ESTIMATED CONSTRUCTION COSTS	 \$12,193,000
PROJECT RELATED COSTS	<u>3,047,000</u>
 TOTAL ESTIMATED PROJECT COSTS	 \$15,240,000

NOTE: Cost Estimates Based on 1996 Conditions.

ALTERNATIVE B-1 - Upgrade and construct a 6.0 MGD Sequencing Batch Reactor Wastewater Treatment Facility.

PROS

- a. The Authority already owns the site which has adequate space for expansion.
- b. The entire site has been disturbed by previous construction. Even though the site had hydric soils at one time, they are disturbed. No significant environmentally sensitive areas are located near the facility.
- c. The operating costs are typically lower than a conventional activated sludge processing facility like the existing plant.

CONS

- a. There would be a major disruption in the plant operation as it would be necessary to install the SBR tanks in the area of the trickling filters.
- b. The operators would need training as it would be a different type of process.
- c. The construction period would be longer as the removal of the trickling filters and the construction of the new treatment tanks would likely need to be phased construction to maintain treatment effectiveness.
- d. The cost is slightly higher than expanding the original process in Alternative A-1.

ALTERNATIVE B-1
UPGRADE AND CONSTRUCT A 6.0 MGD SEQUENCING
BATCH REACTOR WASTEWATER TREATMENT FACILITY

<u>DESCRIPTION</u>	<u>ESTIMATED CONSTRUCTION COSTS</u>
1. New Headworks-Small Equalization Facility (25% of flow)	\$3,100,000
2. New SBR Tanks & Equipment	2,550,000
3. Demolish Existing Trickling Filters	90,000
4. Covert Aeration Tanks to Digesters	280,000
5. Convert Final Clarifiers to Sludge Holding Tanks	360,000
6. Interunit Piping	375,000
7. Sitework, Paving, Fencing, Etc.	200,000
8. Electrical	425,000
9. Plumbing	50,000
10. HVAC/Mechanical	<u>100,000</u>
 SUBTOTAL CONSTRUCTION COSTS	 \$7,530,000
10% CONTINGENCY	<u>753,000</u>
 TOTAL ESTIMATED CONSTRUCTION COSTS	 \$8,283,000
PROJECT RELATED COSTS	<u>2,071,000</u>
 TOTAL ESTIMATED PROJECT COSTS	 \$10,354,000

NOTE: Cost Estimates Based on 1996 Conditions

ALTERNATIVE B-2 - Upgrade and Construction of an 8.0 MGD Sequencing Batch Reactor Wastewater Treatment Facility.

PROS

- a. The Authority already owns the site which has adequate space for expansion.
- b. The entire site has been disturbed by previous construction. Even though the site had hydric soils at one time, they are disturbed. No significant **environmentally** sensitive areas are located near the facility.
- c. The operating costs are typically lower than a conventional activated sludge processing facility like the existing plant.

CONS

- a. There would be a major disruption in the plant operation as it would be necessary to install the SBR tanks in the area of the trickling filters.
- b. The operators would need training as it would be a different type of process.
- c. The construction period would be longer as the removal of the trickling filters and the construction of the new treatment tanks would likely need to be phased construction to maintain treatment effectiveness.
- d. The cost would be considerably higher than Alternative A-1 due to the need to expand the sludge handling facilities, additional treatment units, etc. The contributing municipalities could not initially afford the debt service for the additional 2.0 MGD capacity.

ALTERNATIVE B-2
UPGRADE AND CONSTRUCT A 8.0 MGD SEQUENCING
BATCH REACTOR WASTEWATER TREATMENT FACILITY

<u>DESCRIPTION</u>	<u>ESTIMATED CONSTRUCTION COSTS</u>
1. New Headworks - Small Equalization Facility (25% of flow)	\$3,560,000
2. New SBR Tanks & Equipment	3,120,000
3. Modify Primary Clarifier Box	50,000
4. New Primary Clarifier	550,000
5. Add Sludge Handling Facilities including a New Filter Press, Sludge Storage, Pump and Piping Modifications	2,050,000
6. Additional Garage/Storage Space Lost to New Belt Filter Press in Existing Garage	250,000
7. Additional Chlorination/Dechlorination Facilities	150,000
8. Equalization for Discharge	370,000
9. Additional Digester (Exist Aeration Tank)	475,000
10. Additional Blowers, Piping, Etc.	100,000
11. Interunit Piping	350,000
12. Site work, Paving, Fencing, Etc.	375,000
13. Demolition of Existing Trickling Filters	90,000
14. Electrical	675,000
15. Plumbing	125,000
16. HVAC/Mechanical	<u>250,000</u>
 TOTAL ESTIMATED COSTS	 \$12,540,000
10% CONTINGENCY	<u>1,254,000</u>
 TOTAL ESTIMATED CONSTRUCTION COSTS	 \$13,794,000
PROJECT RELATED COSTS	<u>3,448,500</u>
 TOTAL ESTIMATED PROJECT COSTS	 \$17,242,500

NOTE: Cost Estimates Based on 1996 Conditions

ALTERNATIVE C-1 - Revise existing plant to provide dual treatment processes and expand 1.5 MGD to a total of 6.0 MGD capacity.

PROS

- a. The Authority already owns the site which has adequate space for expansion.
- b. The existing treatment facility can remain in normal operation during much of the construction period.
- c. With existing facilities there is a cost savings as most of the existing units and processes are to be utilized in the upgraded/expanded plant.
- d. The entire site has been disturbed by previous construction. Even though the site had hydric soils at one time, they are disturbed. No significant environmentally sensitive areas are located near the facility.

CONS

- a. The technology utilized is not the most advanced treatment process.
- b. There will be some disruption of treatment effectiveness and the operators will have to contend with the contractor performing work.
- c. The operators need to control two processes rather than a single process which would increase labor costs, laboratory analyses and other operating costs.

ALTERNATIVE C-1
REVISE EXISTING PLANT TO PROVIDE DUAL
TREATMENT PROCESSES AND EXPAND
1.5 MGD TO A TOTAL 6.0 MGD CAPACITY

<u>DESCRIPTION</u>	<u>ESTIMATED CONSTRUCTION COSTS</u>
1. New Headworks, Equilization Facility (25% of flow)	\$3,100,000
2. Two New Primary Clarifiers & Box	975,000
3. Modify/Raise Four Trickling Filters to 16' high	2,450,000
4. Interunit Piping	380,000
5. Site Work, Paving, Fencing, Etc.	225,000
6. Electrical	275,000
7. Plumbing	50,000
8. HVAC/Mechanical	<u>100,000</u>
 TOTAL ESTIMATED COSTS	 \$7,555,000
10% CONTINGENCY	<u>755,000</u>
 TOTAL ESTIMATED CONSTRUCTION COSTS	 \$8,310,000
PROJECT RELATED COSTS	<u>2,080,000</u>
 TOTAL ESTIMATED PROJECT COSTS	 \$10,390,000

NOTE: Cost Estimates Based on 1996 Conditions

ALTERNATIVE C-2 - Revise existing plant to provide dual treatment processes and expand 1.5 MGD to a total of 6.0 MGD capacity.

PROS

- a. The Authority already owns the site which has adequate space for expansion.
- b. The existing treatment facility can remain in normal operation during much of the construction period.
- c. With existing facilities there is a cost savings as most of the existing units and processes are to be utilized in the upgraded/expanded plant.
- d. The entire site has been disturbed by previous construction. Even though the site had hydric soils at one time, they are disturbed. No significant environmentally sensitive areas are located near the facility.

CONS

- a. The technology utilized is not the most advanced treatment process.
- b. There will be some disruption of treatment effectiveness and the operators will have to contend with the contractor performing work.
- c. The construction period would be much longer due to the additional units to be constructed and modifications/additions to the existing facilities.
- d. The cost would be considerably higher than Alternative C-1 due to the need to expand the sludge handling facilities, additional treatment units, etc. The contributing municipalities could not afford the debt service for the additional 2.0 MGD capacity.
- e. The operators would need to control two processes rather than a single process which would increase labor costs, laboratory analyses and other operating costs.

ALTERNATIVE C-2
REVISE EXISTING PLANT TO PROVIDE DUAL
TREATMENT PROCESSES AND EXPAND
2.5 MGD TO A TOTAL 8.0 MGD CAPACITY

<u>DESCRIPTION</u>	<u>ESTIMATED CONSTRUCTION COSTS</u>
1. New Headworks, Equilization Facility (25% of flow)	\$3,560,000
2. Two New Primary Clarifiers & Box	1,200,000
3. Modify/Raise Four Trickling Filters to 20' high	2,950,000
4. Interunit Piping	380,000
5. Site Work, Paving, Fencing, Etc.	245,000
6. Electrical	575,000
7. Plumbing	60,000
8. HVAC/Mechanical	125,000
9. Sludge Handling Facilities Including a New Belt Press, Sludge Storage, Two New Anaerobic Digesters, Pump & Piping Modifications, Etc.	2,050,000
10. Additional Garage/Storage Space Lost to New Belt Filter Press in Existing Garage	250,000
11. Additional Chlorination/Dechlorination Facilities	<u>150,000</u>
 SUBTOTAL CONSTRUCTION COSTS	 \$11,545,000
10% CONTINGENCY	<u>1,155,000</u>
 TOTAL ESTIMATED CONSTRUCTION COSTS	 \$12,700,000
PROJECT RELATED COSTS	<u>3,175,000</u>
 TOTAL ESTIMATED PROJECT COSTS	 \$15,875,000

NOTE: Cost Estimates Based on 1996 Conditions.

WASTEWATER TREATMENT FACILITIES ALTERNATIVE - OTHER THAN
AT EXISTING PLANT LOCATION

TAYLOR RUN PUMPING STATION DRAINAGE AREA -

The current site for treatment of flows from the Taylor Run Pumping Station drainage area is the existing 4.5 MGD West Goshen Sewer Authority Treatment Facility on South Concord Road along the southern border of West Goshen Township. Flows are pumped from Taylor Run to Washington Street Pumping Station which conveys the wastewater to an interceptor flowing to the West Goshen Sewage Treatment Plant. This is a no action required alternative to providing treatment of wastewater in the northwestern portion of the Township.

By constructing a wastewater treatment facility in this area of the Township, there would be a savings in pumping costs as well as freeing up available capacity in the existing treatment plant for growth in the rest of the Township as well as the contributing municipalities.

There are five alternatives for treatment of wastewater generated in the Taylor Run drainage area of West Goshen Township as well as the Broad Run drainage area of West Whiteland Township that is conveyed to the Taylor Run Pumping Station through the Grubbs Mill Pumping Station. The alternatives are as follows:

1. Purchase capacity at West Chester Borough's Taylor Run Wastewater Treatment Facility and/or pay for expanding that treatment facility.
2. Construct a wastewater treatment facility adjacent to the Taylor Run Pumping Station in East Bradford Township.
3. Construct a wastewater treatment facility on the Jerrehian tract, and have the Taylor Run Pumping Station pump all the flow to that treatment facility.
4. Construct a wastewater treatment lagoon on the property below the West Chester Country Club site for spray irrigation of the Golf Course.
5. Construct a wastewater treatment facility at or near the confluence of Taylor Run and the Brandywine Creek with ultimate discharge to the Brandywine Creek.

Pros and cons of each alternative for wastewater treatment in this drainage area are as follows:

ALTERNATIVE D-1 - Purchase Capacity at Borough's Taylor Run Treatment Plant.

PROS

- a. There is an existing treatment facility which has some reserve capacity available with the possibility of a paper rerating.
- b. The construction costs to convey the wastewater from the Taylor Run Pumping Station to the West Chester Taylor Run Plant would be minimal.
- c. There would be no concern with an interbasin transfer of water.

CONS

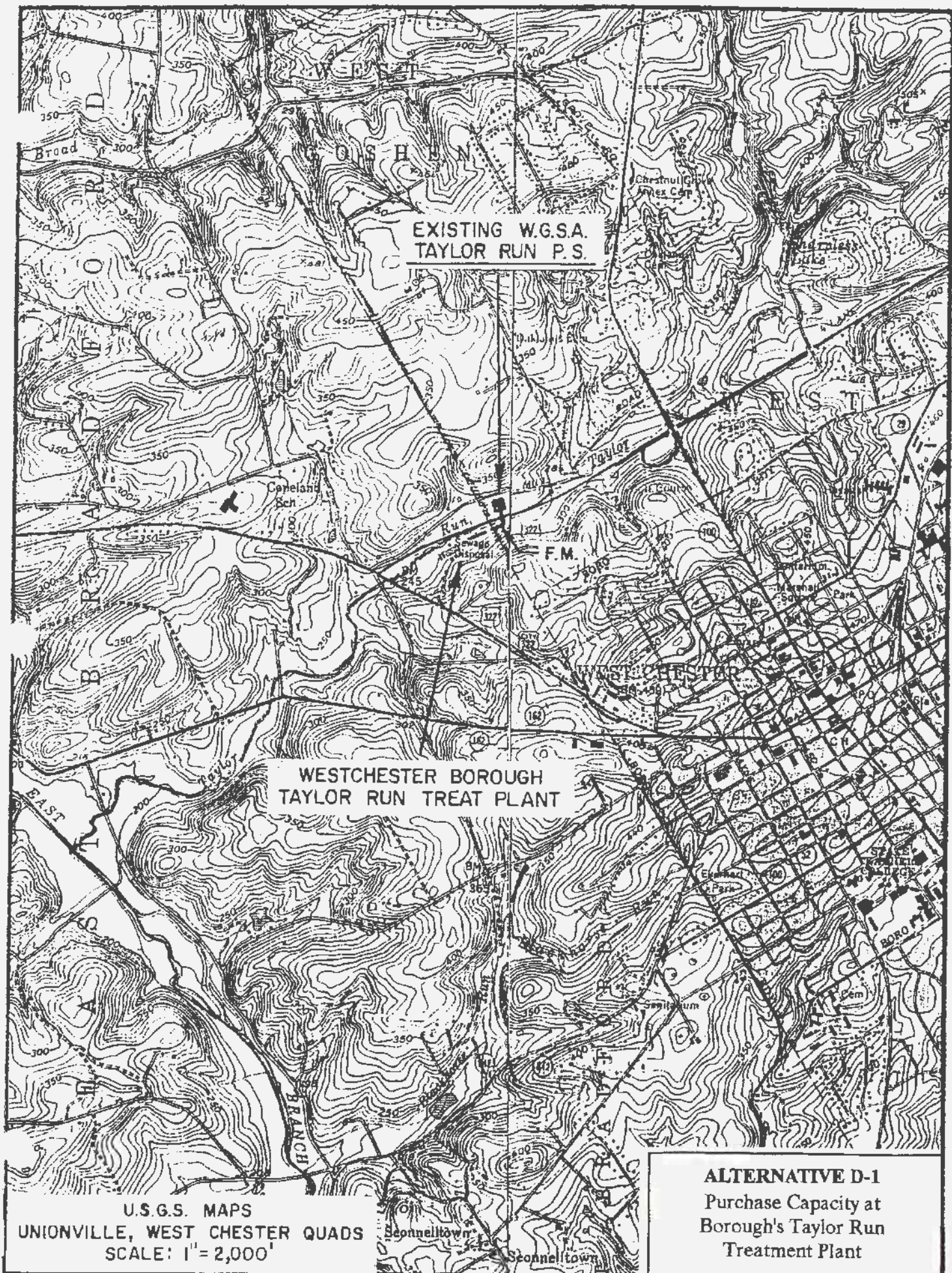
- a. West Chester Borough was contacted and requested to provide information in regards to available capacity at their Taylor Run Wastewater Treatment Facility. They are currently updating their Act 537 Plan and are unsure if there will be any available capacity for purchase by other municipalities.
- b. Currently the Borough has an intermunicipal agreement with East Bradford Township. East Bradford would probably have the right of first refusal of the treatment plant capacity. West Whiteland Township has also been negotiating with the Borough for several years to purchase treatment capacity at the Taylor Run Wastewater Treatment Facility.
- c. Even if a paper rerating of the Taylor Run Wastewater Treatment Facility were accomplished, the 1.6 MGD projected for the Taylor Run Pumping Station drainage area would require either a splitting of the flows to the existing Township plant or an expansion of the Borough's Taylor Run Plant.
- d. It may take several years to negotiate an intermunicipal agreement with West Chester Borough prior to the initiation of design and actual construction of an expanded treatment plant.

ALTERNATIVE D-1

PURCHASE CAPACITY AT BOROUGH'S
TAYLOR RUN TREATMENT PLANT

ESTIMATED CONSTRUCTION COSTS

<u>DESCRIPTION</u>	<u>QUANTITY</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>
12" FORCE MAIN	1,100 L.F.	\$35.00	\$ 38,500
12" FORCE MAIN HIGHWAY CROSSING	120 L.F.	\$350.00	42,000
CONNECTION TO EXISTING LINES	2	\$2,500.00	5,000
MISCELLANEOUS CONSTRUCTION COSTS	1	\$4,500.00	4,500
TOTAL ESTIMATED CONSTRUCTION COSTS			\$ 90,000
ESTIMATED PROJECT RELATED COSTS			22,500
TOTAL ESTIMATED PROJECT COSTS			\$ 112,500
PURCHASE OF CAPACITY AT TAYLOR RUN TREATMENT PLANT INCLUDING ALL PROJECT RELATED AND FINANCIAL COSTS FOR 1.6 MGD @\$9.80/GALLON			\$15,680,000
TOTAL ESTIMATED COSTS			\$15,792,500



ALTERNATIVE D-2 - Construct New 1.6 MGD Wastewater Treatment Facility
Adjacent to Taylor Run Pumping Station.

PROS

- a. There would be minimal costs to convey the wastewater from the Taylor Run Pumping Station to the proposed plant site.
- b. There would be no concern with an interbasin transfer of water.
- c. There would be no need to update the pumps at the Taylor Run Pumping Station.

CONS

- a. There is already a treatment plant discharge from the West Chester Plant into Taylor Run which is a small tributary of the Brandywine Creek. This likely would make the discharge limitations fairly stringent.
- b. The Brandywine Creek is designated as a high quality stream, thus discharge limitations will likely be stringent.
- c. The adjacent property is located in East Bradford Township and there may be some public opposition to constructing a plant on this site.
- d. There are some wetlands on the property as well as moderately steep slopes which would increase the construction costs. Access to the property is not the best.

ALTERNATIVE D-2

CONSTRUCT NEW 1.6 MGD WASTEWATER TREATMENT FACILITY
ADJACENT TO TAYLOR RUN PUMPING STATION

1. OUTFALL DISCHARGE POINT A

<u>DESCRIPTION</u>	<u>QUANTITY</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>
12" FORCE MAIN	500 L.F.	\$35.00	\$ 17,500
24" OUTFALL LINE	800 L.F.	\$60.00	48,000
CONNECTION TO EXISTING FORCE MAIN	1	\$2,500.00	2,500
OUTFALL STRUCTURE	1	\$3,000.00	3,000
GRAVITY CROSSING OF ROUTE 322	120 L.F.	\$450.00	54,000
SUBTOTAL LINE WORK CONSTRUCTION COSTS			\$ 125,000
ESTIMATED 1.6 MGD TREATMENT PLANT COSTS (TERTIARY)			\$10,400,000
TOTAL ESTIMATED CONSTRUCTION COSTS			\$10,525,000
ESTIMATED PROJECT RELATED COSTS			2,631,250
SUBTOTAL PROJECT COSTS			\$13,156,250
PURCHASE OF LAND - 6 ACRES @ \$80,000			480,000
TOTAL ESTIMATED PROJECT COSTS			\$13,636,250

2. OUTFALL DISCHARGE POINT B

<u>DESCRIPTION</u>	<u>QUANTITY</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>
12" FORCE MAIN	500 L.F.	\$35.00	\$ 17,500
24" OUTFALL LINE	9,700 L.F.	\$60.00	582,000
CONNECTION TO EXISTING FORCE MAIN	1	\$2,500.00	2,500
OUTFALL STRUCTURE	1	\$3,000.00	3,000
GRAVITY CROSSING ROUTES 322 & 162	200 L.F.	\$450.00	90,000
SUBTOTAL LINE WORK CONSTRUCTION COSTS			\$ 695,000
ESTIMATED 1.6 MGD TREATMENT PLANT COSTS (TERTIARY)			\$10,300,000
TOTAL ESTIMATED CONSTRUCTION COSTS			\$10,995,000
ESTIMATED PROJECT RELATED COSTS			2,748,750
SUBTOTAL PROJECT COSTS			\$13,743,750
PURCHASE OF LAND - 6 ACRES @ \$80,000			480,000
PURCHASE OF ROW - 9,700 L.F. @ \$5.00/L.F.			48,500
TOTAL ESTIMATED PROJECT COSTS			\$14,272,250

This is a detailed topographic map of the Unionville, West Chester area. The map features contour lines indicating elevation, with labels such as 150, 200, 250, 300, 350, 400, 450, 500, and 550. Major roads are shown as solid lines, and smaller roads as dashed lines. The map includes labels for various locations: 'Broad' in the upper left, 'Taylor Run' in the center, 'Cleveland Sch.' in the middle left, 'Sewage Disposal' in the center, 'F.M.' (Fire Marshal) in the center right, 'Harples Lake' in the upper right, 'Sennelltown' in the lower center, and 'Boro' in the lower right. A proposed 'NEW W.W.T.F.' (Wastewater Treatment Facility) is marked with a square symbol near the center. An 'EXISTING W.G.S.A. TAYLOR RUN P.S.' (Pumping Station) is marked with a square symbol near the top center. Two 'OUTFALL DISCHARGE POINT' locations are marked with square symbols and labeled 'A' and 'B'. The map also shows a grid of streets in the lower right quadrant, likely representing the town of West Chester.

EXISTING W.G.S.A.
TAYLOR RUN P.S.

NEW W.W.T.F.

OUTFALL DISCHARGE
POINT "A"

OUTFALL DISCHARGE
POINT "B"

U.S.G.S. MAPS
UNIONVILLE, WEST CHESTER QUADS
SCALE: 1" = 2,000'

ALTERNATIVE D-2
Construct New 1.6 MGD
Wastewater Treatment Facility
Adjacent to Taylor Run
Pumping Station

ALTERNATIVE D-3 - Construct new 1.6 MGD wastewater treatment facility on Jerrehian Tract.

PROS

- a. There would be minimal costs to convey the wastewater from the Taylor Run Pumping Station to the proposed plant site.
- b. There would be no concern with an interbasin transfer of water.
- c. There would be no need to update the pumps at the Taylor Run Pumping Station.
- d. There is sufficient land available to site a treatment facility

CONS

- a. There is already a treatment plant discharge from the West Chester Plant into Taylor Run which is a small tributary of the Brandywine Creek. This likely would make the discharge limitations fairly stringent.
- b. The Brandywine Creek is designated as a high quality water, thus discharge limitations will likely be stringent.
- c. There would likely be public opposition as the most probable area for siting the plant would be near wetland areas slightly upstream from the Sharpless Lake in the North Hills Development.
- d. There are some wetlands on the property as well as moderately steep slopes which would increase the construction costs. Access to the property is not the best.
- e. It would likely be necessary to obtain rights of way for the outfall line.

ALTERNATIVE D-3

CONSTRUCT NEW 1.6 MGD WASTEWATER TREATMENT FACILITY ON
JERREHAN TRACT

ESTIMATED CONSTRUCTION COSTS

<u>DESCRIPTION</u>	<u>QUANTITY</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>
12" FORCE MAIN	4,000 L.F.	\$35.00	\$ 140,000
24" OUTFALL LINE	2,000 L.F.	\$60.00	120,000
CONNECTION TO EXISTING FORCE MAIN	1	\$2,500.00	2,500
OUTFALL HEADWALL	1	\$3,000.00	3,000
SUBTOTAL LINE WORK CONSTRUCTION COSTS			<u>\$ 265,500</u>
ESTIMATED 1.6 MGD TREATMENT PLANT COSTS (TERTIARY)			\$10,400,000
TOTAL ESTIMATED CONSTRUCTION COSTS			<u>\$10,665,500</u>
ESTIMATED PROJECT RELATED COSTS			2,666,375
SUBTOTAL PROJECT COSTS			<u>\$13,331,875</u>
PURCHASE OF LAND - 6 ACRES @ \$80,000 M			480,000
TOTAL ESTIMATED PROJECT COSTS			<u>\$13,811,875</u>

ALTERNATIVE D-4 - Construct wastewater treatment lagoons for 1.6 MGD capacity for spray irrigation on the property below the West Chester Golf Course.

PROS

- a. There would be minimal costs to convey the wastewater from the Taylor Run Pumping Station to the proposed plant site.
- b. There would be no concern with an interbasin transfer of water.
- c. There would be no need to update the pumps at the Taylor Run Pumping Station.
- d. This would provide groundwater recharge in the Taylor Run drainage area.
- e. It would likely be necessary to run the outfall line down to Taylor Run near the Taylor Run Pumping Station.

CONS

- a. The identified property has been proposed to be an 81 lot residential subdivision (Viv Carlas) rather than the cluster home concept originally proposed. Therefore, it does not seem that there is sufficient space to utilize the spray irrigation treatment process.
- b. There is a potential for odors at certain times of the year.

ALTERNATIVE D-4

CONSTRUCT WASTEWATER TREATMENT LAGOONS FOR
1.6 MGD CAPACITY FOR SPRAY IRRIGATION ON
GOLF COURSE PROPERTY

<u>DESCRIPTION</u>	<u>QUANTITY</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>
12" FORCE MAIN	500 L.F.	\$35.00	\$ 17,500
12" FORCE MAIN HIGHWAY CROSSING	120 L.F	\$350.00	42,000
CONNECTION TO EXISTING FORCE MAIN	1	\$2,500.00	2,500
SUBTOTAL LINE WORK CONSTRUCTION COSTS			<u>\$ 62,000</u>
LAGOONS & SPRAY IRRIGATION SYSTEM FOR 1.6 MGD @ \$5.00/GALLON			\$ 8,000,000
TOTAL ESTIMATED CONSTRUCTION COSTS			<u>\$ 8,062,000</u>
ESTIMATED PROJECT RELATED COSTS			2,015,500
SUBTOTAL PROJECT COSTS			<u>\$10,077,500</u>
PURCHASE OF LAND - 25 ACRES @ \$100,000			2,500,000
TOTAL ESTIMATED PROJECT COSTS			<u>\$12,577,500</u>



EXISTING W.G.S.A.
TAYLOR RUN P.S.

This is a detailed topographic map of the Unionville, West Chester Quads. The map features contour lines indicating elevation, with labels such as 150, 200, 250, 300, 350, 400, and 450. Major roads are shown as solid lines, and smaller roads or paths are indicated by dashed lines. The map includes various geographical features, including hills, valleys, and water bodies. A prominent area labeled 'LAGOONS' is shown in the center-right, with a grid-like pattern suggesting a planned layout. The map also shows the 'TAYLOR RUN P.S.' (Public Sewer) and 'W.G.S.A.' (West Chester Sewerage Authority) infrastructure. The map is oriented with North at the top, and the 'EAST' direction is indicated on the left side. The map is a U.S.G.S. map, as indicated by the text at the bottom left.

LAGOONS

U.S.G.S. MAPS
UNIONVILLE, WEST CHESTER QUADS
SCALE: 1"= 2,000'

ALTERNATIVE D-4
Construct Wastewater Treatment
Lagoons for 1.6 MGD Capacity
for Spray Irrigation on
Golf Course Property

ALTERNATIVE D-5 - Construct a 1.6 MGD or 2.4 MGD wastewater treatment facility near confluence of Brandywine Creek and Taylor Run.

PROS

- a. There would be minimal costs to convey the wastewater from the Taylor Run Pumping Station to the proposed plant site.
- b. There would be no concern with an interbasin transfer of water.
- c. There would be no need to update the pumps at the Taylor Run Pumping Station.

CONS

- a. It would be necessary to purchase land for the site and obtain rights of way for the interceptors in East Bradford Township.
- b. There is already a treatment plant discharge from the West Chester Plant into Taylor Run which is a small tributary of the Brandywine Creek. This likely would make the discharge limitations fairly stringent.
- c. The Brandywine Creek is designated as a high quality water, thus discharge limitations will likely be stringent.
- d. There are some wetlands on the property as well as moderately steep slopes which would increase the construction costs. Access to the property is not the best.

The alternatives reviewed included the construction of new wastewater treatment facilities, however, these alternatives were not the alternative of choice (See Item VI. Evaluation of Alternatives). TABLE 22 shows the comparison of cost for all the alternatives.

ALTERNATIVE D-5

CONSTRUCT A 1.6 OR 2.4 MGD WASTEWATER TREATMENT FACILITY
NEAR CONFLUENCE OF BRANDYWINE CREEK AND TAYLOR RUN

A. GRAVITY OPTION

<u>DESCRIPTION</u>	<u>QUANTITY</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>
24" GRAVITY INTERCEPTOR	2,600 L.F.	\$60.00	\$ 156,000
30" GRAVITY INTERCEPTOR	5,600 L.F.	\$70.00	392,000
30" OUTFALL FROM STP	1,800 L.F.	\$70.00	126,000
CONNECTION TO EXISTING FORCE MAIN	1	\$2,500.00	2,500
OUTFALL HEADWALL	1	\$3,000.00	3,000
GRAVITY CROSSINGS ROUTES 322 162	200 L.F.	\$475.00	95,000
SUBTOTAL LINE WORK CONSTRUCTION COSTS			\$ 744,500
1. ESTIMATED 1.6 MGD TREATMENT PLANT COSTS (TERTIARY) @ \$6.50/GALLON			\$10,400,000
TOTAL ESTIMATED CONSTRUCTION COSTS			\$11,174,500
ESTIMATED PROJECT RELATED COSTS			2,793,625
SUBTOTAL PROJECT COSTS			\$13,968,125
PURCHASE OF LAND - 6 ACRES @ \$80,000			480,000
PURCHASE OF RIGHTS OF WAY 9,000 L.F. @ \$5.00			45,000
TOTAL ESTIMATED PROJECT COSTS			\$14,493,125
<hr/>			
2. SUBTOTAL LINE WORK CONSTRUCTION COSTS			\$ 774,500
ESTIMATED 2.4 MGD TREATMENT PLANT COSTS (TERTIRARY) @ \$6.25/GALLON			\$15,000,000
TOTAL ESTIMATED CONSTRUCTION COSTS			\$15,774,500
ESTIMATED PROJECT RELATED COSTS			\$ 3,943,625
SUBTOTAL PROJECT COSTS			\$19,717,625
PURCHASE OF LAND - 7 ACRES @ \$80,000			560,000
PURCHASE OF RIGHTS OF WAY - 9,000 L.F. @ \$5.00			45,000
TOTAL ESTIMATED PROJECT COSTS			\$20,322,625

CONTINUE OF ALTERNATIVE D-5

B. FORCE MAIN

<u>DESCRIPTION</u>	<u>QUANTITY</u>	<u>UNIT PRICE</u>	<u>AMOUNT</u>
12" FORCE MAIN	8,200 L.F.	\$35.00	\$ 287,000
30" GRAVITY OUTFALL FROM STP	1,800 L.F.	\$70.00	126,000
FORCE MAIN CROSSINGS ROUTES 322 AND 162	200 L.F.	\$375.00	75,000
CONNECTION TO EXISTING FORCE MAIN	1	\$2,500.00	2,500
OUTFALL HEADWALL	1	\$3,000.00	3,000
SUBTOTAL LINE WORK CONSTRUCTION COSTS			\$ 493,500
1. ESTIMATED 1.6 MGD TREATMENT PLANT COSTS (TERTIARY) @ \$6.50/GALLON			\$10,400,000
TOTAL ESTIMATED CONSTRUCTION COSTS			\$10,893,500
ESTIMATED PROJECT RELATED COSTS			2,723,375
SUBTOTAL PROJECT COSTS			\$13,616,875
PURCHASE OF LAND - 6 ACRES @ \$80,000			480,000
PURCHASE OF RIGHTS OF WAY 9,000 L.F. @ \$5.00			45,000
TOTAL ESTIMATED PROJECT COSTS			\$14,141,875
<hr/>			
2. SUBTOTAL LINE WORK CONSTRUCTION COSTS			\$ 493,500
ESTIMATED 2.4 MGD TREATMENT PLANT COSTS (TERTIRARY) @ \$6.25/GALLON			\$15,000,000
TOTAL ESTIMATED CONSTRUCTION COSTS			\$15,493,000
ESTIMATED PROJECT RELATED COSTS			\$ 3,873,250
SUBTOTAL PROJECT COSTS			\$19,366,250
PURCHASE OF LAND - 7 ACRES @ \$80,000			560,000
PURCHASE OF RIGHTS OF WAY 9,000 L.F. @ \$5.00			45,000
TOTAL ESTIMATED PROJECT COSTS			\$19,971,250

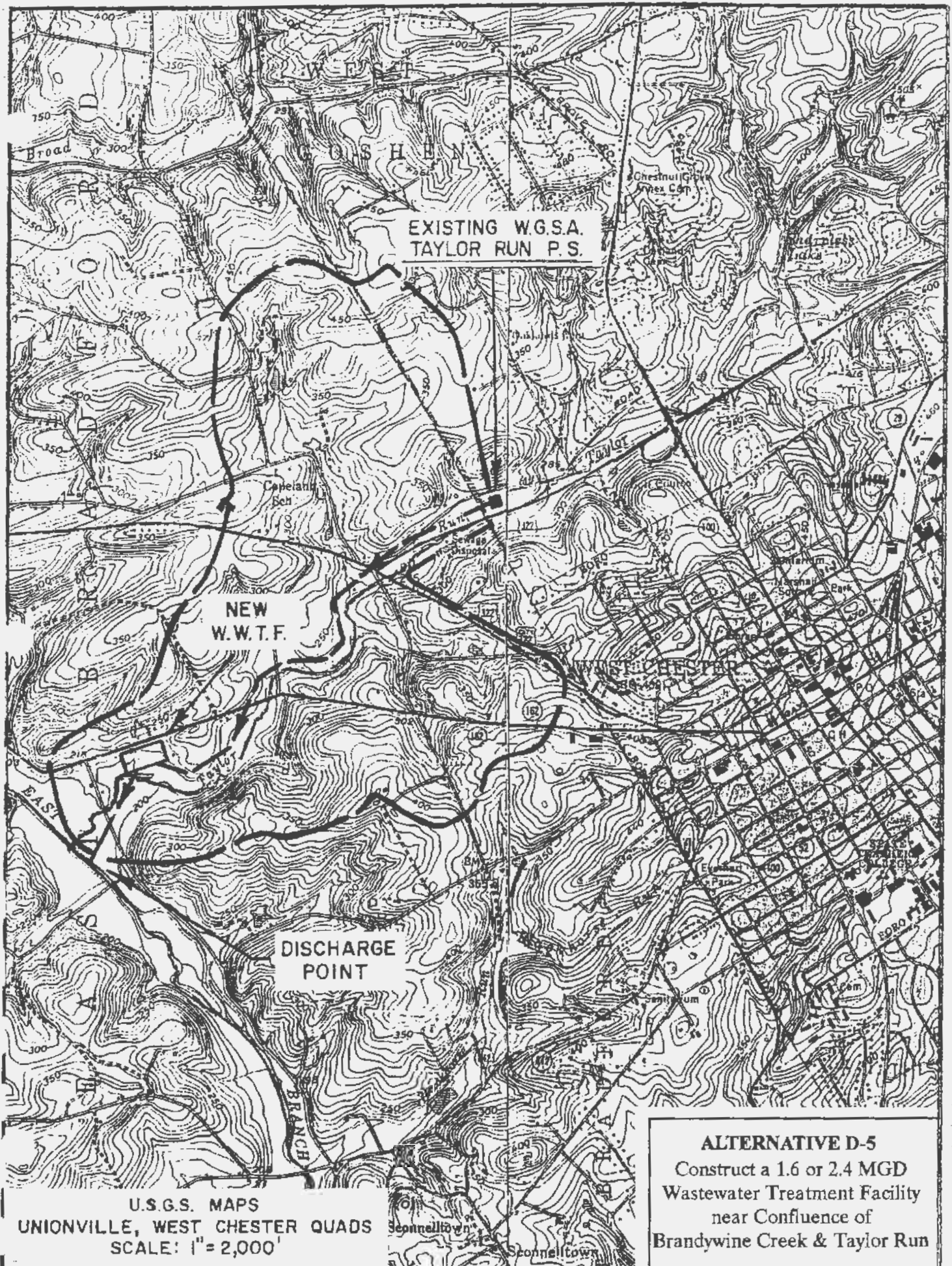


TABLE NO. 22
SUMMARY OF ESTIMATED CONSTRUCTION
AND PROJECT COSTS FOR WASTEWATER
TREATMENT PLANT ALTERNATIVES

<u>ALT. NO.</u>	<u>DESCRIPTION</u>	<u>TOTAL EST. CONSTRUCTION</u>	<u>EST. PROJECT RELATED COSTS</u>	<u>EST. TOTAL PROJECT COSTS</u>
<u>EXISTING TREATMENT PLANT SITE</u>				
A-1	Upgrade and Construct Additional Expansion of 1.5 MGD Wastewater Treatment capacity to Total 6.0 MGD using Existing Process.	\$ 6,820,000	\$1,705,000	\$ 8,525,000
A-2	Upgrade and Construct Additional Expansion of 2.5 MGD Wastewater Treatment Capacity to Total 8.0 MGD using Existing Process.	12,193,000	3,047,000	15,240,000
B-1	Upgrade and Construct a 6.0 MGD Sequencing Batch Reactor Wastewater Treatment Facility.	8,283,000	2,071,000	10,354,000
B-2	Upgrade and Construction of an 8.0 MGD Sequencing Batch Reactor Wastewater Treatment Facility.	13,794,000	3,448,500	17,242,500
C-1	Revise Existing Plant to Provide Dual Treatment Processes and Expand 1.5 MGD to a total 6.0 MGD Capacity.	8,310,000	2,080,000	10,390,000
C-2	Revise Existing Plant to provide Dual Treatment Processes and Expand 2.5 MGD to a Total 8.0 MGD Capacity.	12,700,000	3,175,000	15,875,000
<u>SECONDARY TREATMENT PLANT SITE</u>				
D-1	Purchase Capacity At Borough's Taylor Run Treatment Plant.	12,634,000	3,158,500	15,792,500
D-2	Construct New 1.6 MGD Wastewater Treatment Facility Adjacent to Taylor Run Pumping Station.			
	a. Taylor Run Outfall	10,525,000	3,111,250	13,636,250
	b. Brandywine Creek Outfall	11,095,000	3,302,250	14,397,250
D-3	Construct New 1.6 MGD Wastewater Treatment Facility on Jerrehian Tract.	10,665,500	3,146,375	13,811,875
D-4	Construct Wastewater Treatment Lagoons for 1.6 MGD Capacity for Spray Irrigation on Golf Course Property.	8,062,000	4,515,500	12,577,5000
D-5	Construct a 1.6 MGD or 2.4 MGD Wastewater Treatment Facility Near Confluence of Brandywine Creek and Taylor Run.			
	a (1). Gravity - 1.6 MGD	11,174,5000	3,318,625	14,493,125
	a (2). Gravity - 2.4 MGD	15,774,500	4,548,625	20,323,125
	b (1). Force Main - 1.6 MGD	10,893,5000	3,248,375	14,141,875
	b (2). Gravity - 2.4 MGD	15,493,000	4,478,250	19,971,250

6. Repair or replacement of collection and conveyance system components.

With the anticipated development and sewer extensions expected to occur by the year 2000, all pumping station flows are expected to remain within their design capacities.

An analysis of each pumping station design capacity, existing flows, year 2000 flows and ultimate build-out flows is located in the following TABLE 23.

TABLE 23
ANALYSIS OF PUMPING STATION FLOWS
WEST GOSHEN TOWNSHIP, CHESTER COUNTY, PENNSYLVANIA

PUMPING STATION NAME AND NUMBER	CAPACITY (gpd)	AVERAGE 1995 FLOW (gpd)	% OF CAPACITY USED	YEAR 2000 FLOW (gpd)	% OF CAPACITY USED	ULTIMATE FLOW (gpd)	% OF CAPACITY USED
Montgomery Avenue (1)	216,000	66,000	30.5%	66,000	31.5%	74,000	34.3%
Trinity Drive (2)	259,200	47,000	18.0%	31,500	12.2%	40,000	15.4%
Spruce Avenue (3)	1,008,000	190,000	19.0%	238,300	22.6%	246,575	24.5%
Abandoned (4)	---	---	---	---	---	---	---
Abandoned (5)	---	---	---	---	---	---	---
Ellis Lane (6)	1,450,000	322,000	22.2%	372,100	25.7%	395,157	27.3%
Abandoned (7)	---	---	---	---	---	---	---
Abandoned (8)	---	---	---	---	---	---	---
Abandoned (9)	---	---	---	---	---	---	---
Woodcrest (10)	144,000	9,000	6.9%	11,400	7.9%	25,400	17.6%
Taylor Run (11)	1,440,000	522,000	36.3%	767,760	53.3%	1,569,839	109.0%
Washington Street (12)	5,472,000	873,000	16.0%	1,077,110	19.7%	2,234,761	40.8%
Westtown Way (13)	3,868,000	1,294,000	33.3%	1,339,600	34.5%	2,033,449	52.1%
Abandoned (14)	---	---	---	---	---	---	---
Abandoned (15)	---	---	---	---	---	---	---
Northeast Fernhill (16)	1,100,000	149,000	13.5%	336,350	30.6%	502,708	45.7%
Hamilton Woods (17)	345,600	24,420	7.1%	27,648	8.0%	51,840	15.0%

Source: Consultant's calculation of existing flows, partially completed and proposed development and undeveloped area with corresponding zoning densities.

For future use in updating this plan, the rough calculations and corresponding map are located in APPENDIX F.

When reviewing these results, it is apparent that the Taylor Run Pumping Station # 11 could become overloaded if that drainage area were to fully develop. For this reason, several treatment alternatives were investigated for this area in the previous Wastewater Treatment Plant Capacity section.

The Township's Act 537 Plan envisions that the rest of the areas projected to be sewerred within the Township will be for new development where the developers of the particular tracts will be responsible for connecting to the existing collection system. Any existing homes with on-lot systems which can connect to the new lines installed by developers will be required to connect to the collection system.

7. Use of alternative methods of collection/conveyance to serve needs areas using existing wastewater treatment facilities.

The only area of significant need has just recently been sewerred. The Greenhill / Howard Road area, some street with capped sewers and existing homes were connected to the Hamilton Woods collection system and Pumping Station.

8. The continual and future use of individual and community subsurface sewage disposal system alternative based on:

a. Soil suitability.

b. Preliminary hydrogeological evaluation.

The continued use of subsurface disposal systems will be limited due to the extent of the public sewerage system. Individual on-lot disposal systems will be allowed only for residences not within the existing sewer service area. In those cases, lots should be large enough to allow for a replacement site, and only if soils are suitable to support that type of system.

It may be possible to effect repair, replacement, or upgrade of systems utilizing the technology outlined in the referenced Chapter 73 of the Pennsylvania Department of Environmental Protection's Rules and Regulations. According to Chapter 73, when dealing with systems that have previously been permitted and are properly constructed, the sewage enforcement officer may use best technical guidance in their repair and/or replacement.

When any of the following systems are proposed, refer to Title 25, Chapter 73 as noted:

- Septic tanks73.31
- Aerobic septic tanks73.32
- Standard trenches73.52
- Seepage beds73.53
- Subsurface sand filters73.54
- Elevated sand mounds73.55

In all cases, community on-lot disposal systems will not be allowed for new or existing developments, and retaining tanks will be allowed in accordance with conditions stipulated by the Chester County Health Department.

The importance of the use of conservation devices can't be over-estimated, especially with a household's reliance upon OLDS. It is vitally important to utilize water conservation devices. Items such as low-flush toilets, low-flow shower heads, and adjustable water level washing machines are important additions to homes relying upon OLDS. A listing of conservation devices are included in APPENDIX E of this report along with the Township's related ordinances.

c. The establishment of a sewage management program.

West Goshen Township has somewhat of an advantage over an entirely rural municipality in that a very significant portion of its population is served by municipal sewerage facilities. As a result an on-lot management program would not be as cumbersome to operate in the remaining unsewered areas as it would be in a totally unsewered and moderately developed township.

Such management programs offer possible solutions to the proper maintenance of wastewater treatment and disposal systems. These programs also provide for the safety and public health of the community in general and lessens the potential problems that may have to be considered by the local governing body and its agents.

A sample "On-Lot Management District Program" has been included in APPENDIX K attached to this report.

- 9. The repair, replacement or upgrading of existing malfunctioning systems in the areas suitable for on-lot disposal considering:**
- a. Existing technology and sizing requirements of Title 25 Chapter 73.**
 - b. Use of expanded adsorption or alternating adsorption areas.**
 - c. Use of water conservation devices.**

The alternatives for repair, replacement or upgrading will depend on the conditions and the recommendations of the SEO and/or Codes Enforcement Officer. If the individual is near public sewer, then the preferred option is connection to the municipal system.

- 10. The use of small flow sewage treatment facilities, land treatment alternatives, or package treatment facilities to serve individual homes or clusters of homes based on:**
- a. Discharge Requirements.**
 - b. Soil Suitability.**
 - c. Preliminary Hydrogeologic Evaluation.**
 - d. Agency or other controls over operation and maintenance requirements.**

At the present time there are no non-municipal treatment facilities for which municipal ownership has been assumed, nor is it recommended in the future. It is the Township's desire that for any new development which is proposed, centralized sewerage facilities be connected to the existing sewerage system.

11. The use of retaining tank alternatives including:

- a. Commercial, residential and industrial use.**
- b. Designated conveyance facilities (pumper trucks).**
- c. Designated treatment facilities or disposal site.**
- d. Implementation of a retaining tank ordinance by the municipality.**
- e. Financial guarantees when retaining tanks are used as an interim sewage disposal measure.**
- f. Temporary or permanent use.**

Use of retaining tanks for wastewater containment prior to removal and conveyance to an adequate treatment and/or disposal site is considered to be a "band-aid" approach for remedying existing on-lot disposal system inadequacies. The use of retaining tanks for new land development/subdivisions will be considered only for those areas which are known to be served by municipal facilities within a reasonable period of time (three years) or in extreme emergencies provided that there is financial security and the assurance that said municipal facilities will be able to serve the site within the aforementioned period of time. The use of such facilities should be accompanied by strict water conservation practices.

In the case of repairs, all other means of repair must be considered prior to considering a retaining tank. In all cases, retaining/holding tank permits should be issued in strict compliance with Chester County and DEP regulations.

Certainly in some cases retaining/holding in tank are it is applicable, and may be the only available alternative. This may be particularly true for commercial and/or industrial applications in which liquid wastes are too hazardous for subsurface disposal. However, because of the frequency of service visits, it is very labor and equipment intensive, and becomes a financial burden for private homeowners.

The costs associated with the use of a retaining tank is very substantial due to the required frequent septage removal, hauling, and disposal. Because of these costs, there is always the temptation to punch holes into the sidewalls of the tank to allow wastewater to escape, thereby, decreasing the number of visits by septage haulers and the associated high costs.

With the use of retaining tanks comes the associated need to treat and/or dispose of the wastewater. Should there be eventual wide-spread use (reliance) on retaining tanks, arrangements will have to be made for the proper treatment and disposal of the wastewater.

12. A no-action alternative which includes both short-term and long-term impacts on:

- a. Water Quality/Public Health.**
- b. Growth potential (residential, commercial, industrial).**
- c. Community economic conditions.**
- d. Recreational opportunities.**
- e. Drinking water sources.**
- f. Other environmental concerns.**

A total "no action" alternative would not be suitable to protect and enhance the West Goshen Township community, and it is apparent that West Goshen Township has not taken this path relative to sewage disposal. A presentation of the impacts of a "no action" alternative is summarized in TABLE 24 and serves to stress the importance of avoiding such a selection.

TABLE 24

**SHORT-TERM AND LONG-TERM IMPACTS
OF THE "NO ACTION" ALTERNATIVE
WEST GOSHEN TOWNSHIP, CHESTER COUNTY, PENNSYLVANIA**

PLANNING CONSIDERATION	SHORT-TERM IMPACT	LONG-TERM IMPACT
Water Quality	Isolated cases of water quality pollution may occur - short-term impact appears to be minimal.	Isolated cases may spread to areawide cases that may lead to larger scale pollution - adverse long-term impact minimal due to large lot sizes and stringent control at Subdivision and Land Development level.
Public Health	Presently not aware of any problems relative to public health - short-term impact would appear to be minimal. However, better record keeping at the County level should be kept in regard to on-lot disposal systems.	Moderate to high potential for problems associated with OLDS malfunctions and localized contamination of ground water sources. Cannot foresee any long-term adverse impacts based on existing records.
Growth Potential	The majority of the Township is already developed and will not be affected.	The majority of the Township is already developed and will not be affected.
Community Economic Conditions	Limiting tax base which limits income to Township.	Limiting tax base which limits income to Township.
Recreational Opportunities	Little short-term impact, however the Comprehensive Plan should be updated to analyze and include recreational areas.	Minimal long-term impact, however the Comprehensive Plan should be updated to analyze and include recreational areas.
Drinking Water Sources	Cases of isolated and localized water supply contamination of individual wells may occur if pollution is traced to OLDS and if said OLDS cannot be repaired.	Cases of continued localized and increasingly regional contamination of individual and municipal groundwater supplies. If SED program fails and DER and Township regulations relative to subsurface disposal are not prudently enforced, isolated isolated contamination could change to area-wide contamination.

13. Discuss the need for and implementation of a sewage management program to assure the future operation and maintenance of existing and proposed sewage facilities through:

- a. Municipal ownership or other management control over the operation and maintenance of individual on-lot sewage disposal systems, Small flow treatment facilities, or other non-municipal treatment facilities.**

Municipal ownership of individual on-lot sewage disposal systems, small flow treatment facilities, or non-municipal treatment facilities is one way of making certain that systems are operated and maintained by agents of the municipality. However, in the case of private on-lot systems the legal ramifications are enormous due to the fact that the septic tank and subsurface disposal area are an integral part of the land owner's property. In some cases it may be possible that the property owner would require a substantial amount of money for a route of ingress/egress to the actual septic system land area. Furthermore, it is likely that, when engaging in such an undertaking, it would be advisable to acquire a replacement system site in addition to the original system site.

In the case of small flow treatment facilities or non-municipal treatment facilities, the municipality should be aware of the initial financial conditions surrounding the provisions for the facilities. In some cases a developer may have constructed collection and treatment facilities and recouped the cost of these and other utilities upon the sale of the building lots. Sale of the sewerage system by the owner to a municipal agency would then be double dipping and would impose increased user charges on those who already paid for the facilities as well as other users of the municipal system.

At the present time neither West Goshen Township nor the West Goshen Sewer Authority is interested in assuming nor do they have the capabilities to assume ownership of any of the three types of facilities considered. Municipal ownership of individual on-lot disposal systems may be considered in any new developments utilizing OLDS so that provisions for ingress/egress and septic tank access can be incorporated into the design of the subdivision. However, due to findings of the preliminary hydrogeologic investigation, this may be a moot consideration if development relying on OLDS is eliminated as a means for development to occur.

The On-lot Management Ordinance proposed will provide limited management control over the operations and maintenance of individual on-lot sewage disposal systems. The small flow and other non-municipal treatment facilities do not currently exist in the Township and do not need to be addressed.

b. Requiring scheduled inspection of on-lot sewage disposal systems.

As part of an On-Lot Management Program scheduled inspection of on-lot wastewater disposal systems will provide the opportunity to identify malfunctioning systems on a routine basis. It removes the burden of reporting malfunctioning systems from friends and/or next door neighbors of the offending system's owner and places it in a less personal and more professional context.

The creation and enactment of an On-Lot Management Program ordinance would institute this necessary activity. Inspections or reviews of third party inspections would be performed on a routine basis by the Code Enforcement Officer for West Goshen Township. In the event of the occurrence of extreme environmental conditions additional inspections could be conducted either on a site specific basis or a general basis as a comparison to routine inspections.

The actual inspection would include observation of the soil surface in the vicinity of the house lateral to the septic tank, the area around the septic tank, and the area atop and downhill from the drain field, sand mound, or seepage bed area(s).

c. Requiring scheduled maintenance of septic and aerobic treatment tanks and associated systems components.

In order for the On-Lot Management Program to be effective it is also essential that provisions for scheduled maintenance of septic tanks and aerobic treatment tanks be included within the ordinance. Such a regulation provides for the avoidance of an extreme build-up of solids in the units which could wash into the drain field or sand mound system, thereby clogging these routes for subsurface disposal of the treated effluent.

This routine maintenance would include septage or sludge removal and proper disposal on a routine basis. "Routine" may be considered to be every two to five years for a septic tank, depending upon the number of persons served by the unit. The routine maintenance of an aerobic treatment tank would be designated by the particular manufacturer's maintenance information.

This routine maintenance could be performed by septage/sludge haulers contracted by the municipality. Another possibility would be to use employees of the appropriate authority responsible for municipal wastewater facilities in the service area or by Township employees.

Records of the maintenance activity would be maintained for the municipality by its employees or agents in order to provide for an assured routine activity. Costs incurred by this program would be handled much like the user charge system established by an authority governing municipal sewer services.

d. Aggressive enforcement of ordinances which require operation and maintenance and prohibit malfunctioning systems.

The nature of the West Goshen Township officials appears to reflect an attitude of fairness and responsibility. Although they may not want to impose any extreme measures on their residents, they recognize the responsibility of each resident to protect the health and safety of the community in general. Therefore, if an On-Lot Management Program Ordinance is enacted aggressive enforcement should be considered as a functional part of the ordinance.

e. Repair, replacement or upgrading of malfunctioning on-lot sewage systems.

Naturally, if the Township is going to enact an On-Lot Management Program Ordinance containing the previously discussed provisions, it should contain provisions requiring repair, if possible, or replacement of the identified malfunctioning OLDS. The Chester County Sewage Enforcement Officer would be in charge of testing for, locating, and installing the OLDS.

f. Establishment of joint municipal sewage management programs.

The number of on-lot sewage disposal systems is relatively low so the Township does not need to develop a joint municipal sewer program. However, the Township should develop a program and solicit recommendations from the Chester County Department of Health.

g. Reduction of organic or hydraulic loading to existing wastewater treatment facilities.

There are currently no existing small flow treatment facilities or other non-municipal treatment facilities which could experience an overload. It is unlikely that any will be constructed either due to the proximity of collection lines in most of the areas of the Township. Therefore, this is not a perceived problem at this time but will be addressed if necessary in the future.

h. Requirement for bonding, escrow accounts, management agencies or associations to assure proper operation and maintenance for non-municipal facilities.

In the preparation of a sewage management program requirements for bonding, escrow, etc. will be investigated.

14. Non-structural comprehensive planning alternatives that can be undertaken to assist in meeting existing and future sewage disposal needs including:
- a. Modification of existing comprehensive plans involving:
 - 1. Land use designations.
 - 2. Densities.
 - 3. Municipal ordinances and regulations.
 - 4. Improved enforcement.
 - 5. Protection of drinking water sources.
 - b. Need for a comprehensive plan to assist in producing sound economic and consistent land development.
 - c. Alternatives for creating or changing municipal subdivision regulations to assure long-term use of on-site sewage disposal.
 - d. Evaluation of existing local agency programs and the need for technical or administrative training.

Comprehensive planning represents a very effective tool in providing for the sewage disposal needs of a community. Original comprehensive plans and zoning delineations were prepared to reflect the existing conditions and provide for a continued expansion throughout the same areas, rather than provide for a brand new starting point.

West Goshen Township has evolved with a 1977 Comprehensive Plan which has since become outdated. This Official Wastewater Facilities Plan has been developed in conjunction with the Township's Comprehensive Plan as much as possible.

Comprehensive planning requirements were included as part of this legislation (as per Act 247), as were wastewater facilities planning requirements (as per Act 537). The intent of this section, therefore, is to resolve discrepancies which may exist between the existing Comprehensive Plan and this Official Wastewater Facilities Plan. Modification of either of these plans would be the manner by which these discrepancies could be resolved.

It is recommended that the Township's Comprehensive Plan be updated to include the existing conditions and a reevaluation of the goals and objectives of West Goshen Township. The Township should periodically reevaluate their Subdivision and Land Development Ordinance and Zoning Ordinance and update them where necessary. They were both updated during the past several years. The Township continues to send its staff to seminars and courses provided by various agencies including DEP to keep abreast of any changes in rules and regulations for land development approvals.

Currently, DEP planning modules are required for any future development in the Township. After the plant expansion, the Township will not submit the planning modules to DEP until a future projected overload conditions occurs (refer to Act 149).

VI. The Evaluation of Alternatives.

A. Each Technically feasible alternative identified in Section V of this checklist must be evaluated for consistency with respect to the following:

1. Applicable plans developed and approved under Sections 4 and 5 of the Clean Streams Law or Section 208 of the Clean Water Act.

Each alternative appears to be consistent with the Clean Water Act.

2. Municipal wasteload management plans developed under PA Code, Title 25, Chapter 94. The municipality's recent Wasteload Management (Chapter 94) Reports should be examined to determine if the proposed alternative is consistent with the recommendations and findings of the report.

Each proposed alternative is consistent with the recommendations and findings of the Chapter 94 report.

3. Plans developed under Title II of the Clean Water Act or Titles II and VI of the Water Quality Act of 1987.

The Plan and alternatives appear to be consistent with the Clean Water Act and Water Quality Act of 1987.

4. Comprehensive plans developed under the Pennsylvania Municipalities Planning Code. The municipalities comprehensive plan must be examined to assure that the proposed wastewater disposal alternative is consistent with land use and all other requirements stated in the comprehensive plan.

The disposal alternatives appear to be consistent with requirements of the comprehensive plan.

5. Antidegradation requirements as contained in PA Code, Title 25, Chapter 93, (5 and 102 (relating to water quality standards, wastewater treatment requirements and erosion control) and the Clean Water Act.

The existing receiving stream does not fall under the category of high quality waters, however, the treatment plant alternatives should provide for the protection of the existing quality of the stream and its uses.

6. State water plans developed under the Water Resources Planning Act.

The alternatives should not be in conflict with of the Water Resources Planning.

7. Pennsylvania Prime Agricultural Land Policy contained in Title 4 of the Pennsylvania Code, Chapter 7, Subchapter W. Provide narrative on local municipal policy and an overlay map on prime agricultural soils.

The local municipal has no specific policy on prime farmland. Mapping of soils and discussion of prime farmland are included in the Exhibit and Appendix sections of the Plan. The existing treatment facility, where expansion is intended is not a farm nor in a rural area of the Township.

- 8. County Stormwater Management Plans approved by the Department under the Storm Water Management Act. Conflicts created by the implementation of the proposed wastewater alternative and the existing recommendations for the management of stormwater in the County Stormwater Management Plan must be evaluated and mitigated. If no plan exists, no conflict exist.**

There will be no additional stormwater impact with the exception of the construction phase of the project which is controlled through erosion and sedimentation plans.

- 9. Wetland Protection under PA Code Title 25, Chapter 105. Map wetland areas using Federal National Wetlands Inventory Mapping and Soils Mapping. Identify and provide mitigative measures for any encroachments on wetland from the construction or operation of any wastewater facilities proposed by the alternative.**

The alternative selected should have no conflict with wetland issues. The other alternatives if selected may have required encroachment permits since typically a treatment plant facility is located along a waterway. EXHIBIT 2-3 depicted wetlands as mapped by the Federal National Wetland Inventory.

- 10. Protection of rare, endangered or threatened plant and animal species identified by the Pennsylvania National Diversity Inventory (PNDI). Provide the Department with a copy of the completed Request for PNDI Search document. Also provide a copy of the response letter from the Departments' Bureau of Forestry regarding the findings of the PNDI search.**

The existing location of the treatment plant and the area of expansion does not have any habitats for rare, endangered or threatened plant and animal species. The correspondence to the Bureau of Forestry is in APPENDIX M.

11. Historical and Archaeological Resources Protection index
P.S.C. Title 37, Section 507 relating to cooperation by public
officials with the Pennsylvania Historical and Museum Commis-
sion. Provide the Department with a completed copy of Form
"A" and its attachments requesting the Bureau of Historic Pres-
ervation (BHP) to provide a listing of known historical sites and
potential impacts on known archaeological and historical sites.
Also provide a copy of the response letter from the BHP.

There are no known archeological and historical sites at the existing treatment plant location. Correspondence from BHP is in APPENDIX M. Several alternatives near the Brandywine Creek may be in close proximity to historical and archeological sites. These were not the selected alternative so this should not be a problem.

The well water quality throughout West Goshen Township should improve to a limited extent with the recommended wastewater plan. The improvement of surface water quality is expected to be rather minimal. Although some surface water contamination may be occurring because of surface malfunctions of on-lot systems, surface water quality is thought to be more significantly impacted by agricultural related pollutants and urban/suburban stormwater runoff.

Improvements in the groundwater environment are expected in areas of concentrated development which currently rely on on-lot disposal systems.

West Goshen Township should conduct an environmental assessment before any sewerage alternative is chosen for the areas of need. The results of the said detailed assessment will be used in conjunction with other factors such as costs, funding, etc. in order to help select the proper alternative. Some aspects that will be investigated at that time are air quality, noise, endangered species, wetlands, floodplains, surface and groundwater, sludge disposal, agricultural land, excessive energy consumption, visual effects/amenities, socioeconomic conditions, historic and archaeologic sites, wild and scenic rivers, soil fill areas/landfills, and other environmentally sensitive areas. This Act 537 report may provide some of the above needed information.

B. Provide for resolution of any inconsistencies in any of the points identified in Section VI.A. of this checklist by submitting written documentation that the appropriate agency has received, reviewed and concurred with the method proposed to resolve identified inconsistencies.

The written documentation for appropriate agency and resolution to the inconsistency may be found in the Plan Summary of the report. The BHP letter (APPENDIX L) stated that there were possible problems with alternatives along the Brandywine Creek (Alternative D-5).

C. Evaluate each alternative identified in Section V. of this checklist with respect to applicable water quality standards, effluent limitations or other technical, legislative or legal requirements.

The alternatives kept in mind the need to meet the standards of water quality in regards to known permitting requirements of the Department and other legal and technical requirements.

D. Provide cost estimates using present worth analysis for construction, financing, ongoing administration, operation and maintenance and users fees for each alternative identified in Section V of the checklist. Estimates shall be limited to areas identified in the plan as needing improved sewage facilities within 5 years from the date of plan submission.

TABLE 25 below shows the present worth analysis and TABLE 26 shows the summary of estimated user fees.

TABLE NO. 25

20 YEAR PRESENT WORTH ANALYSIS
FOR THE THREE MOST VIABLE ALTERNATIVES
AT THE EXISTING WASTEWATER TREATMENT FACILITY

<u>DESCRIPTION</u>	<u>A-1</u> EXPAND EXISTING PROCESS TO 6.0 MGD	<u>B-1</u> INSTALL SBR SYSTEM TO 6.0 MGD	<u>C-1</u> DUAL PROCESS TO 6.0 MGD
<u>ESTIMATED ADDITIONAL O & M COSTS</u>			
ADMINISTRATION	\$ 0	\$ 0	\$ 0
LABOR	30,000	30,000	40,000
UTILITIES	40,000	28,000	40,000
CHEMICALS	5,000	5,000	5,000
SLUDGE DISPOSAL	50,000	50,000	50,000
REPAIRS, MAINTENANCE, SUPPLIES	16,000	8,000	34,000
LAB COSTS, MISC. COSTS	-----	-----	-----
TOTAL EST. ADDITIONAL O & M COSTS	\$ 141,000	\$ 121,000	\$ 169,000
PRESENT WORTH OF ADDL. O & M COSTS	\$1,384,000	\$ 1,188,000	\$ 1,659,000
CAPITAL PROJECT COSTS (FROM TABLE 22)	<u>\$8,525,000</u>	<u>\$10,354,000</u>	<u>\$10,390,000</u>
PRESENT WORTH COST	\$9,909,000	\$11,542,000	\$12,049,000

NOTES:

1. Used 8% Rate for Present Worth calculations.
2. Estimated O & M costs are over and above existing 1996 costs for the existing plant. All alternatives included adding 1 additional laborer, primarily for additional sludge handling and maintenance. Alternative C-1 labor was higher due to additional laboratory personnel hours and operational time.
3. The miscellaneous costs for Alternative C-1 is higher due to additional laboratory testing required for operating two different processes.

TABLE NO. 26

SUMMARY OF ESTIMATED USER FEES
FOR THE THREE MOST VIABLE ALTERNATIVES
AT THE EXISTING WASTEWATER TREATMENT FACILITY

	<u>A-1</u>	<u>B-1</u>	<u>C-1</u>
<u>DESCRIPTION</u>	<u>EXPAND EXISTING PROCESS TO 6.0 MGD</u>	<u>INSTALL SBR SYSTEM TO 6.0 MGD</u>	<u>DUAL PROCESS TO 6.0 MGD</u>
TOTAL PROJECT COSTS	\$8,525,000	\$10,354,000	\$10,390,000
WEST GOSHEN SHARE (1)	4,544,000	5,519,000	5,538,000
LESS EXIST RESERVES (2)	<u>2,000,000</u>	<u>2,000,000</u>	<u>2,000,000</u>
TOTAL AMOUNT TO BE FINANCED	\$2,544,000	\$ 3,519,000	\$ 3,538,000
ANNUAL DEBT SERVICE (3)	238,271	329,590	331,369
ADDITIONAL O & M COSTS	<u>75,000</u>	<u>63,000</u>	<u>90,000</u>
TOTAL ADDITIONAL COSTS	313,271	394,590	421,369
NO. OF EDU'S	7,500	7,500	7,500
EST. ADDITIONAL ANNUAL COST (4)	42	53	56
EXISTING ANNUAL EDU COST	<u>150</u>	<u>150</u>	<u>150</u>
TOTAL EST. ANNUAL EDU COST	\$ 192	\$ 203	\$ 206

The other alternatives were not evaluated as they were eliminated due to 1) excessive capacity (8.0 MGD) without additional existing potential customers or 2) excessive costs or 3) anticipated difficulties of receiving approvals from the various agencies for a discharge to the Brandywine Creek.

NOTES:

1. West Goshen Share is 53.3% of the total costs (800,000 gpd out of 1,500,000 gpd expansion).
2. To be contributed by Authority and Township from reserve accounts.
3. Annual debt service is based on total principal amount borrowed shown in line above for each alternative amortized at 7% interest over 20 years with semi-annual payments.

E. Provide an analysis of the funding methods available to finance each of the proposed alternatives evaluated in Section V of this checklist. Also provide documentation to demonstrate which alternative and financing scheme combination is most cost effective; and a contingency financial plan to be used if the preferred method of financing cannot be implemented. The funding analysis shall be limited to areas identified in the plan as needing improved facilities within five years from the date of plan submission.

The cost of financing is concerned with costs associated with establishing the proper financing vehicle which enables the municipality through its customers to pay the debt associated with construction of the system. Usually this includes the issuance of a municipal bond which "mortgages" the debt incurred with sewer system construction. Like paying "points" on a mortgage (a fee based on a percentage of the principal being financed), payment to the issuer of the bond must be made for its services. As bond counsel is usually involved, associated fees are also included within the cost of financing.

The cost of financing a sewer project can range from very expensive to reasonable depending upon the relative size of the project. If the amount to be financed is a reasonably small amount that a local bank can finance, then the cost of financing is similar to the cost of financing a large home mortgage. However, usually the amount to be financed requires the involvement of municipal bond service agencies or investment bankers. Fees for providing these services for financing usually amount to a percentage of the total amount to be financed and can be staggering. The cost of financing small individual projects will be proportionately higher than the cost for financing an overall project, mainly because of essentially the same amount of preparation is needed, regardless of the amount borrowed.

For newly developing subdivisions the developers have essentially financed the debt for constructing all their utilities. Final payoff of the debt occurs when the sales of lots in the subdivision are completed. As a result, the home buyer completes the payoff of debt of the collection system, while assuming a portion of the outstanding debt of the Authority's conveyance and treatment facilities.

This is a vitally important consideration because the method by which the incurred debt is financed, in conjunction with the construction of municipal wastewater collection, conveyance, and /or treatment, could mean a difference of tens of dollars in the annual user charge for customers of the sewerage system. However, sometimes there is little choice available to the local agency, depending upon the qualifications of the municipality in meeting the requirements of financing agencies. Listed below are the primary funding sources currently available:

1) Federal

DEPARTMENT OF AGRICULTURE, RURAL UTILITY SERVICES (RUS), FORMERLY FARMERS' HOME ADMINISTRATION (FmHA)

The Rural Utility Services (RUS) Program makes long-term (40 year) loans available to communities having a population of 20,000 or less and open rural areas. RUS also provides grant funds to some municipalities and authorities, depending upon the proposed service area's median household income.

FEDERAL WATER QUALITY ACT

Grants of up to 55 percent of eligible costs are available for the construction of sewage treatment plants and sewerage components.

HOUSING AND URBAN DEVELOPMENT ACT

Grants and loans for up to 50 percent of eligible costs are available for the construction of sewerage facilities.

2) State

Grants from Commonwealth of Pennsylvania sources are generally made to those projects which are given high priority when rated by the regulatory agencies. The aim of these state programs is to reduce the local outlay to a point where the community can provide public sewerage service at rates prevailing throughout the surrounding area.

Sources of state funding are as follows:

COMMUNITY FACILITIES GRANT

Funds are made available for water and sewerage facilities from state tax on harness racing parimutuel betting. The maximum grant amount is 75 percent of the total project costs, but not to exceed \$100,000. This money cannot be utilized for sewage treatment plants.

PENNSYLVANIA INFRASTRUCTURE INVESTMENT AUTHORITY (PENNVEST)

The Pennsylvania Infrastructure Investment Authority offers a program for funding water and sewer projects in Pennsylvania. It offers both grants and loans towards the planning, design, and construction of these facilities. Primarily the program offers low interest loans with twenty year terms at rates between one per cent (1%) and six per cent (6%). At present applications can be submitted anytime and projects are reviewed quarterly by the PENNVEST board.

Previously projects were required to be "ready for construction" in order to even receive the attention of the PENNVEST board. More recently provisions have been approved for "advanced funding" toward planning and design efforts. A specific set-aside for small communities is being considered. Pennvest criteria are located in APPENDIX G.

The maximum grant funding for sewer projects is currently \$500,000 and \$250,000 for water projects.

STATE REVOLVING FUND

This fund should shortly be replacing PENNVEST funding. In order to obtain SRF grants, it is mandated that the applicant conduct an infiltration and inflow analysis of their existing system. For a detailed list of requirements for SRF funding, see APPENDIX H.

CLEAN STREAMS ACT

Grants are made available for 2 percent of eligible costs and are made annually for sewerage facilities already constructed deducting for any state or federal grants or loans made. This is also known as Act 339 monies and the Authority currently receives some funds for its existing facilities.

COMMUNITY DEVELOPMENT BLOCK GRANT (CDBG)

Planning and construction grants available to low to moderate income municipalities for water and sewerage facilities. Project could receive 100 percent reimbursement, depending upon the project, and can be applied for yearly. Typically there is a maximum grant of \$350,000 for individual non-entitlement communities such as West Goshen Township. West Goshen Township would not be eligible for this grant as 51% of the population served must be in the low to low-moderate income ranges.

3) Other Funding Sources

MUNICIPAL BOND MARKET

The municipal bond market has served well in financing municipal projects for a long time. The particular interest rate at which the debt is financed is established by determining the "bond rating" of the applicant. A means for improving the bond rating of a municipal borrower has been devised. This has taken the form of paying a one time insurance premium based upon the value of the sum of principal and interest over the term of the bond. A rule-of-thumb suggests a premium equal to one percent of this sum. This secures an improved bond rating and a more favorable (reduced) interest rate.

The interest rate is also affected by the current market conditions at the time of the settlement for purchasing the bonds.

A second factor in determining the interest rate for a municipal bond is the term of the bond. Investment bankers have typically adjusted the terms of such investments downward from forty to a twenty to twenty-five year term. The result is that a better (lower) interest rate may be obtained.

quent annual operation and maintenance costs should not be significant but could run \$60 to \$120 per year plus septage removal and disposal every three to five years.

Facing this probable layout of funds and the potential for failure of the replacement on-lot disposal system when considering a long-term basis, the expense of installing and connecting to a municipal sewerage system does not seem unreasonable. Of course, there is the additional cost of providing lateral piping from the residence to the curb line when connecting to the municipal system which can be expensive depending on the specific conditions of the property.

The present tapping fee levied by the West Goshen Township Sewer Authority is \$1,000 for existing homes on capped sewers, \$1,500 for existing homes and \$2,000 for new homes connecting to the sanitary sewerage system per equivalent dwelling unit of 300 gallons per day. This charge is primarily for purchase of treatment plant capacity by the user. This one-time payment is used to retire a portion of the outstanding debt incurred for treatment plant construction.

The other one-time fee is the connection fee, which is incurred when the physical connection is made from the private plumbing of the property owner to the municipal sewerage system. The Township connection fee is \$200 and includes the inspection of lateral installation. Fees are also charged if pretreatment is needed.

The result of an Act 203 study prepared in 1991 is located in APPENDIX I.

It is recommended that these fees remain in place until the time that they need to be reevaluated due to new construction and development. Also, using these "up-front" charges, can be used to offset the remaining debt in a new bond issue to be shared by all system users. If the West Goshen Sewage Treatment Plant upgrades or expands, fees will undoubtedly increase. This is why "up-front" contributions for collection/conveyance debt for the conditions described above are vital at the time of facilities construction.

F. Analyze the ability of the municipality to implement each alternative proposed in Section V of this report including:

1. The activities necessary to abate critical public health hazards pending completion of sewerage facilities or sewage management programs.

West Goshen Township has a competent staff which is capable of administering the expansion of the existing treatment facilities and the implementation of an On-lot Sewage Management Program. The Township will likely select the Treatment Plant Superintendent to oversee the expansion project and the Codes Enforcement Officer for being responsible for the OLDS Management Program.

2. The phased development of the facilities or sewage management program.

a. Provide time schedules for implementing each phase.

The time schedules to implement the phased development of the facilities are shown in Table D. under Item 7 Project Implementation Schedule.

3. The administrative organization and legal authority necessary for plan implementation.

The administrative organization and legal authority necessary for plan implementation is currently in place. The rules and regulations governing the adoption of the Act 537 Plan will be followed by the Township.

VII. Institutional Evaluation

A. Provide an analysis of all existing wastewater treatment authorities, their past actions and present performance:

1. Financial & debt status.

The financial debt of the Authority consists of a 1995 refinancing of existing bond issues from 1985, 1986 and a 1991 refinancing. The Authority is paying off the debt through payment received from the Township pursuant to the Lease Agreement. The Authority currently owes slightly less than \$7,000,000.

2. Available staff and administrative resources.

The acceptable authorities for adequate administration of the municipal sewerage system are already in place.

The necessary institutional arrangements will initially involve a seeming myriad of agencies, including the West Goshen Township Board of Supervisors and the Planning Commission and their agents, the Chester County Planning Commission, the Chester County Health Department, the West Goshen Sewer Authority and its agents, and the Pennsylvania Department of Environmental Protection. These groups will be initially involved in the planning phase of the overall project.

Following delineation and complete agreement concerning the service areas and their populations, it is suggested that primary responsibility in providing the necessary facilities lies with the West Goshen Sewer Authority. The Authority is not an operating authority but has the framework in place and experience to oversee the necessary design and construction activities to provide a treatment plant expansion.

Naturally, prospective developers should follow the usual local and county government format to create a new subdivision. However, they should also contact the Authority concerning available conveyance and treatment capacity prior to pursuing any serious ideas of developing extensive tracts of land which would utilize municipal sewerage services.

3. Existing legal authority to:

a. Implement wastewater planning recommendations.

The West Goshen Sewer Authority was formed by the West Goshen Township Board of Supervisors to oversee the necessary planning, design and construction of wastewater collection, conveyance and treatment facilities within the Township.

b. Implement system-wide operation and maintenance activities.

The Township through a written Lease Agreement leases the sewerage facilities from the Authority and has performed the system-wide operation and maintenance activities since the inception of the facilities. The Township mans two shifts at the plant and has workers on 24 hour call when necessary.

c. Set user fees and take purchasing action.

The Township according to ordinances establishes the user fees and reviews the need to adjust the fees on an annual basis. The Township has a purchase order system in place to purchase goods and services.

d. Take action against adopted ordinance violators.

The Township has many ordinances on record for taking action against violators of the rules and regulations governing the use of the sewerage system.

e. Negotiate agreement with other parties.

Typically both the Township and Authority negotiate and execute agreements with other municipalities and other parties.

f. Raise capital for construction and operation and maintenance of facilities.

The Authority has typically raised the capital for the construction of the facilities. However, for each borrowing, the Township has guaranteed the loans through the

full faith and credit of the taxing power of the Township. Operation and maintenance of the facilities is the responsibility of the Township in accordance with the Lease Agreement.

B. Provide an analysis and description of the various institutional alternatives necessary to implement the proposed alternative including:

- 1. Need for new authorities.**
- 2. Functions of existing and proposed organizations (sewer authorities, etc.)**
- 3. Cost of administrative, implementability, and the capability of the authority react to future needs.**

The need to develop a new authority is not a consideration due to the efficiency of the existing Authority. There is an Authority as previously mentioned that governs the basic decisions regarding municipal sewerage services. The basic operation and administration of the West Goshen Sewage Treatment Plant is conducted under the auspices of the West Goshen Board of Supervisors.

The West Goshen Sewer Authority is the public entity which provides the financing vehicle enabling the construction of the existing collection and conveyance system and wastewater treatment facilities.

The West Goshen Sewer Authority has been very effective in providing wastewater treatment needs for West Goshen Township and portions of the surrounding municipalities of West Whiteland Township, East Goshen Township and Westtown Township. Its past actions appear to have been adequate and their present performance also appears to be proper in addressing sewer related issues.

The current Sewage Enforcement Officer program, which is operated by the County, has been performing the SEO work in the Township for many years. A minor problem with finding the records of malfunctioning on-lot disposal systems was encountered during the development of this report. However, the Township has very few (less than 200) onsite wastewater disposal systems remaining in use.

C. Describe all necessary administrative and legal activities to be completed and adopted to ensure the implementation of the recommended alternative including:

1. All legal authorities of incorporation.

The West Goshen Sewer Authority extended its legal incorporation during one of its recent financings. It has been incorporated since 1958. Nothing needs to be completed in this area.

2. All required ordinances, regulations, standards, and inter-municipal agreements.

The draft intermunicipal agreements have been circulated by the Authority solicitor to review and edit prior to execution. The only ordinances to be adopted are the On-lot Management, the Act 537 Plan, and the legal and financial ordinances for the financial settlement. A bond counsel will likely prepare these documents so only resolutions from the Authority and Township are required for performing this work.

3. Activities to provide right-of-way, easements and land transfers.

No rights of way, easements or land transfers will be required for the alternative selected.

4. Other municipal sewage facilities plan adoptions. (include the development of Item 1-4 on the project's schedule of implementation.

The Township and Authority Boards will adopt ordinances and advertise them as necessary to proceed with the project.

5. Any other legal documents.

Other legal documents will be addressed by the two Boards.

D. Identify the chosen institutional alternative for implementing the chosen wastewater disposal alternative. Provide justification for choosing the specific alternative.

Chosen Alternative - A-1. Upgrade and Construct Additional Expansion of 1.5 mgd Wastewater Treatment Capacity to total 6.0 mgd Using Existing Processes.

The Township will implement the chosen wastewater disposal alternative in conjunction with the West Goshen Sewer Authority. The Authority has previously been responsible for all the major construction projects since the first facilities were constructed in the early 1960's with no major problems.

The Township will oversee, through its Code Enforcement Officer, the On-lot Management Program. Since the County has handled the permitting of individual septic systems in the past, the Township does not have much experience in this area. However, the County has indicated that it will not administer an On-lot Sewage Management Ordinance for the local municipalities so the Township will perform this responsibility.

VIII. Selected Wastewater Treatment & Institutional Alternative

- A. Select one technical wastewater disposal alternative which best meets the wastewater treatment needs of each area of the municipality studies. Justify the choices providing documentation which shows that they are the best alternative based on:

1. Wastewater disposal needs.

The alternative selected utilizes the existing treatment plant site and discharge. Also, the majority of the existing facilities can be utilized during construction and will be part of the completed project.

2. Technical and administrative needs.

The treatment plant staff knows how the existing process works and are satisfied with its simplicity of operation and performance. The existing process is not overly automated nor labor intensive. There would need to be a minimal amount of operator training after the facility is expanded.

3. Cost-effectiveness.

This alternative is the most cost effective as it utilizes existing lands owned by the Authority and can be readily expanded in the future. Also, the quickness which the plans should be designed, processed and approved should save time and money.

4. Management and administrative systems available.

The management and administration systems would not have to change. A new plant at another site would have required additional employees and some duplicate services.

5. Financing methods available.

The Township will likely provide funds from its sewer reserve account along with some Authority funds to offset a portion of the monies to be borrowed. Either a loan

from a regional bank or a bond issue would be the two most feasible means of financing the proposed treatment plant expansion.

6. 5 and 10 year planned growth areas.

The 5 and 10 year planned growth areas are all tributary to the treatment facility, some in the southern portion of the Township by gravity and other areas in the more sparsely northern portion of the Township by pumping stations

7. Environmental soundness and compliance with natural resource planning and preservation programs.

All proposed construction would be accomplished on an existing disturbed property which would not harm environmentally sensitive areas. The Goose Creek where the existing treated wastewater is discharged is not a high quality stream like the Brandywine Creek alternatives in the northwestern portion of the Township.

B. Describe the capital financing plan chosen to implement the selected alternative(s).

The capital financing plan selected is the issuance of bonds in an amount to be decided later. The \$4,800,000 share of the costs for West Goshen would be provided through a combination of draw-down of reserves in the Township Sewer Fund and the Authority's Tapping Fee Fund and the bond issue. The exact amounts to be drawn from each account will be determined closer to the closing for the sale of the Bonds. TABLE 27 shows various financing alternatives including a range of principal borrowed, length of loan and interest rates.

TABLE 27

PRELIMINARY ANALYSIS OF WEST GOSHEN TOWNSHIP
 USER CHARGES BASED ON AMOUNT BORROWED
 FOR SEWAGE TREATMENT PLANT EXPANSION
 AND VARYING INTEREST RATES
 JUNE 1996

PRINCIPAL AMOUNT BORROWED	6.0%		6.5%		7.0%		7.5%		8.0%	
	20 YRS	25 YRS	20 YRS	25 YRS	20 YRS	25 YRS	20 YRS	25 YRS	20 YRS	25 YRS
\$2,500,000	29	26	30	27	31	28	32	30	34	31
\$3,000,000	35	31	36	33	37	34	39	36	40	37
\$3,500,000	40	36	42	38	44	40	45	42	47	43
\$4,000,000	46	41	48	43	50	45	52	48	54	50
\$4,500,000	52	47	54	49	56	51	58	53	61	56
\$4,800,000	55	50	58	52	60	54	62	57	65	60

NOTES: 1) THE NUMBERS IN THE TABLE ABOVE ARE THE AMOUNT ON AN ANNUAL BASIS OF EDU CHARGES FOR THE ADDITIONAL DEBT SERVICE.

2) TO OBTAIN TOTAL ESTIMATED FUTURE USER CHARGE, TAKE ADDITIONAL DEBT SERVICE PER EDU FROM TABLE ABOVE AND ADD THE EXISTING ANNUAL RESIDENTIAL CHARGE OF \$150.00 PLUS \$10.00 ADDITIONAL O&M PER YEAR PER EDU. FOR EXAMPLE, IF THE AUTHORITY BORROWS \$3,500,000 AT 7% INTEREST OVER 20 YEARS, THE NEW EDU CHARGE WOULD BE \$44.00 + \$150.00 + \$10.00 OR \$204.00. THE NUMBER OF EDU'S UTILIZED WAS 7,500.

3) THE AMOUNT TO BE FINANCED THROUGH EXISTING RESERVES OR BORROWING ALL THE MONEY IS BASED ON WEST GOSHEN'S SHARE OF THE TOTAL PROJECT COSTS - 800,000 GPD X \$6.00 PER GALLON OR \$4,800,000.

4) THE COST OF BORROWING MONEY WAS BASED ON INTEREST RATES VARYING FROM 6 TO 8% IN 1/2% INCREMENTS AND AMORTIZED OVER EITHER A 20 OR 25 YEAR PERIOD. THE PAYMENTS WERE CALCULATED ON A SEMI-ANNUAL BASIS.

WEST GOSHEN TOWNSHIP
PLANNING COMMISSION
1025 PAOLI PIKE
WEST CHESTER, PA 19380

September 17, 1996

West Goshen Township Board of Supervisors
1025 West Paoli Pike
West Chester, PA 19380

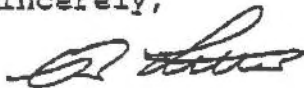
Dear Supervisors:

Re: Act 537 Wastewater Facilities Plan

The West Goshen Township Planning Commission has reviewed the Township's proposed Act 537 Plan. The Planning Commission agrees with the selected alternatives contained in the Plan and we hereby recommend adoption of the Act 537 Plan as the Plan adequately addresses the future sanitary sewage needs of the Township.

If you require any additional comments, do not hesitate to contact us.

Sincerely,



Robert Little
Chairman

cc: Glace Associates, Inc.
File/corres.

RESOLUTION 96 42

RESOLUTION OF THE SUPERVISORS OF EAST GOSHEN TOWNSHIP, CHESTER COUNTY, PENNSYLVANIA (hereinafter "the municipality").

WHEREAS, Section 5 of the act of January 24, 1966, P.L. 1535, No. 537, known as the "Pennsylvania Sewage Facilities Act," as amended, and the Rules and Regulations of the Department of Environmental Protection (Department) adopted thereunder, Chapter 71 of Title 25 of the Pennsylvania Code, requires the municipality to adopt an Official Sewage Facilities Plan providing for sewage services adequate to prevent contamination of waters and/or environmental health hazards with sewage wastes, and to revise said plan whenever it is necessary to meet the sewage disposal needs of the municipality, and

WHEREAS, West Goshen Township, Chester County, has prepared an Official Sewage Facilities Plan for expanding their existing 4.5 MGD sewage treatment plant to 6.0 MGD, and

WHEREAS, East Goshen Township has 1.0 MGD of capacity in the existing West Goshen Sewage Treatment Plant, and

WHEREAS, the proposed West Goshen Sewage Treatment Plant expansion will not adversely affect East Goshen Township.

NOW, THEREFORE, BE IT RESOLVED, that the Board of Supervisors of the Township of East Goshen hereby adopts and submits to the Department of Environmental Protection for its approval, the applicable sections of West Goshen's "Official Plan" as part of East Goshen's "Official Plan" to continue to provide the previously agreed to 1.0 MGD of sewage treatment capacity for its needs in the West Goshen Sewage Treatment Plant

I, Louis F. Smith, Jr. Secretary, East Goshen Township Board of Supervisors, hereby certify that the foregoing is a true copy of the Township Resolution No.96-42 adopted October 15, 1996.

AUTHORIZED SIGNATURE

TOWNSHIP SEAL



Township Secretary

AREA CODE 215
522-7171

EAST GOSHEN TOWNSHIP
PLANNING COMMISSION
1580 PAOLI PIKE, WEST CHESTER, PA. 19380

October 22, 1996

Max E. Stoner, P.E.
Glace Associates, Inc.
3705 Trindle Road
Camp Hill, PA 17011

Re: West Goshen Township 537 Plan

Dear Mr. Stoner:

At their meeting on October 21, 1996 the Planning Commission reviewed the West Goshen 537 Plan. The Commission unanimously supported the Plan and approved a motion to recommend that West Goshen Township use our actual metered flow to West Goshen in the plan as opposed to what is estimated in the Chapter 94, Wasteload Management Report.

Very truly yours,



Jo Ann P. Kelton
Chairman

mdc

cc: West Goshen Township

**BOARD OF SUPERVISORS OF
THE TOWNSHIP OF WEST WHITELAND
CHESTER COUNTY, PENNSYLVANIA**
(hereinafter "the municipality")

**RESOLUTION 96-13
FOR PLAN ADOPTION**

WHEREAS, Section 5 of the Act of January 24, 1996, P.L. 1535, No. 537, known as the "Pennsylvania Sewage Facilities Act," as amended, and the Rules and Regulations of the Department of Environmental Protection (Department) adopted thereunder, Chapter 71 of Title 25 of the Pennsylvania Code, requires the municipality to adopt an Official Sewage Facilities Plan providing for sewage services adequate to prevent contamination of waters and/or environmental health hazards with sewage wastes, and to revise said plan whenever it is necessary to meet the sewage disposal needs of the municipality, and

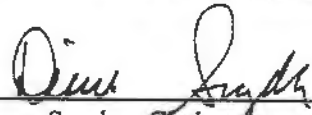
WHEREAS, WEST GOSHEN TOWNSHIP, CHESTER COUNTY, has prepared an Official Sewage Facilities Plan for expanding their existing 4.5 MGD sewage treatment plant to 6.0 MGD and West Whiteland Township is interested in reserving 0.20 MGD of the 1.5 MGD in additional capacity to be constructed in addition to the 0.42 MGD capacity West Whiteland Township has previously reserved in the existing West Goshen Sewage Treatment Plant; and

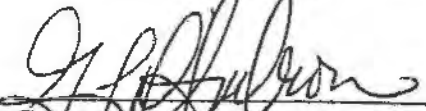
WHEREAS, West Whiteland Township finds that the Facility Plan described above provides the anticipated wastewater treatment capacity needs of West Whiteland Township for the next 10 years and is part of West Whiteland's comprehensive program of pollution control and water quality management.

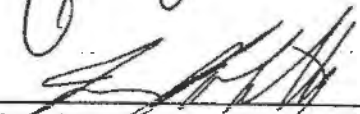
NOW, THEREFORE, BE IT RESOLVED that the Board of Supervisors of the Township of West Whiteland hereby adopts and submits to the Department of Environmental Protection for its approval, the applicable sections of West Goshen's "Official Plan" as part of West Whiteland's "Official Plan" to provide sewage treatment capacity for its anticipated needs for the next 10 years in the West Goshen Sewage Treatment Plant drainage area.

Adopted as a Resolution this *22th* day of *October*, 1996.

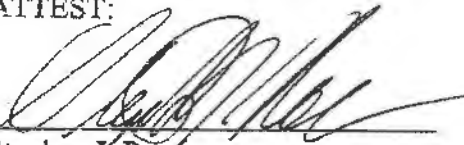
WEST WHITELAND TOWNSHIP
BOARD OF SUPERVISORS


Diane Snyder, Chairman


George D'Ambrosio, Vice Chairman


Jerry Poletto, Member


ATTEST:


Stephen J. Ross

CERTIFICATION

I, *Stephen J. Ross*, Secretary, West Whiteland Township Board of Supervisors, hereby certify that the foregoing is a true copy of the Township Resolution 96-13, adopted October 22, 1996.

AUTHORIZED SIGNATURE



TOWNSHIP SEAL

West Whiteland Township

222 NORTH POTTSTOWN PIKE
P.O. BOX 210
EXTON, PENNSYLVANIA 19341
(610) 363-9525
FAX (610) 363-5099

October 17, 1996
West Goshen Township
1025 Paoli Pike
West Chester, PA 19380

Re: West Goshen Township Act 537 Plan


Gentlemen:

Kindly be advised that at the October 9, 1996 Planning Commission Meeting, the Commission recommended that the Board of Supervisors of West Whiteland Township adopt the draft Act 537 Plan as prepared by West Goshen Township.

By copy of this letter to the West Whiteland Township Board of Supervisors, the Planning Commission recommends that a resolution adopting West Goshen's Act 537 Plan at their next regularly scheduled board meeting be done.

Should you have any questions relative to the above, do not hesitate to contact us.

Very truly yours,
WEST WHITELAND TOWNSHIP

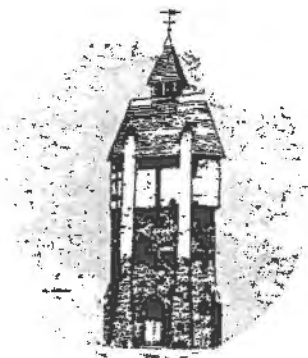

Jack Newell
Planning Commission Chairman
West Whiteland Township

JN:pbl

cc: Ross
Schloesser
W.G.-J. Scott
W.G. Sewer Authority
Glance Associates

wp:jnewer\act 537.wpl





WESTTOWN TOWNSHIP

1081 Wilmington Pike
West Chester, PA 19382

Post Office Box 79
Westtown, PA 19395

610-692-1930

November 1, 1996

Patricia M. Guernsey, Township Manager
West Goshen Township
1025 Paoli Pike
West Chester PA 19380

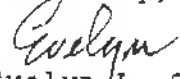
Dear Pat:

Enclosed is the original of Resolution 96-14, adopted by the Board of Supervisors on 10/21/96, endorsing West Goshen's Act 537 sewage treatment plant expansion.

The Board would like to comment that the Westtown flows for year 2000, as designated in the plan, appear to be low and, perhaps, should be adjusted. Whether or not this is of significance to the overall plan is left to your judgment and discretion.

Any questions, please call.

Sincerely,


Evelyn L. Groff
Township Secretary

enclosure

cc: Glace Associates, Inc.

RESOLUTION FOR PLAN ADOPTION

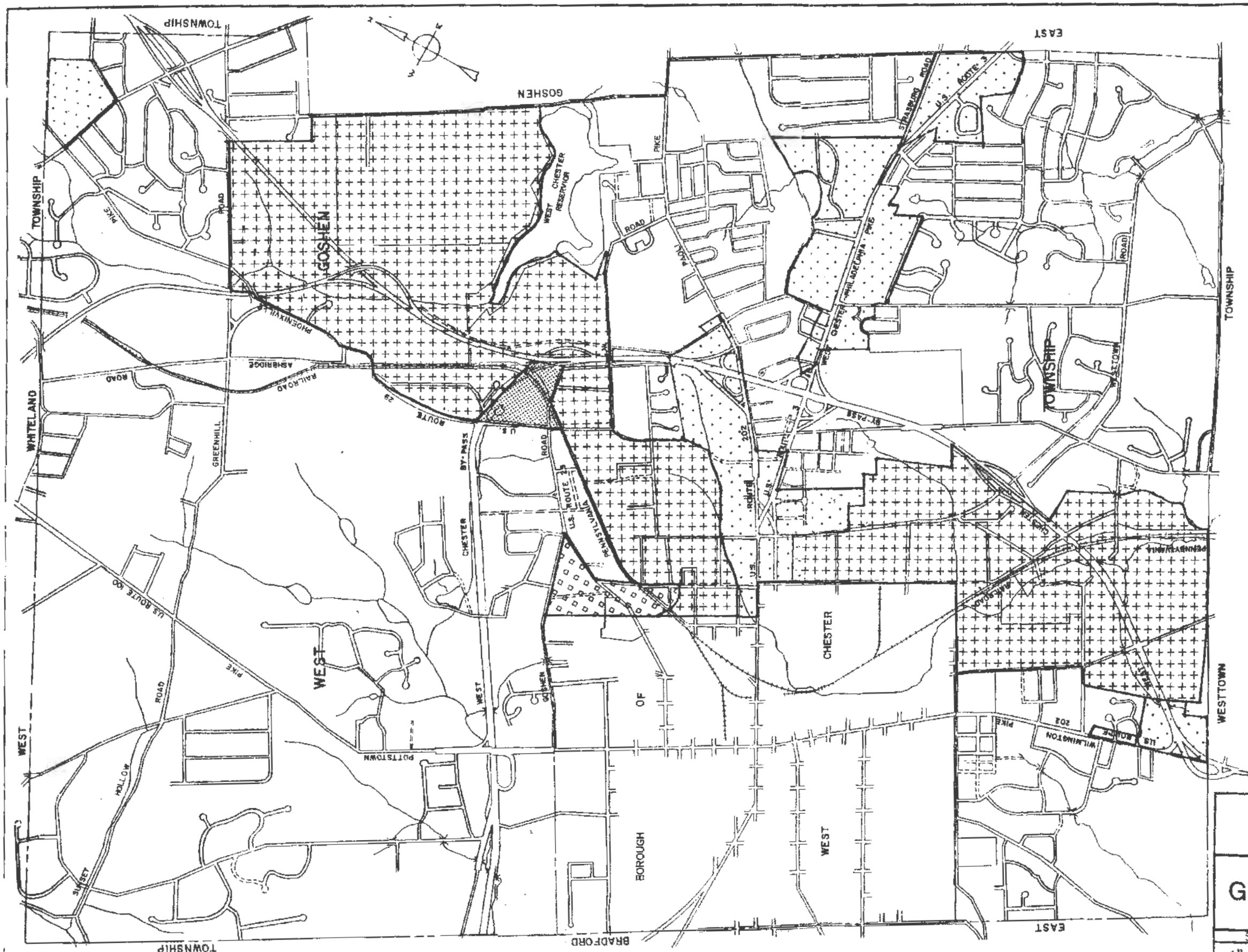
WHEREAS, Section 5 of the Act of January 24, 1966, P.L. 1535, No. 537, known as the "Pennsylvania Sewage Facilities Act," as amended, and the Rules and Regulations of the Department of Environmental Protection (Department) adopted thereunder, Chapter 71 of Title 25 of the Pennsylvania Code, requires the municipality to adopt an Official Sewage Facilities Plan providing for sewage services adequate to prevent contamination of waters and/or environmental health hazards with sewage wastes, and to revise said plan whenever it is necessary to meet the sewage disposal needs of the municipality, and

WHEREAS, Westtown Township finds that the Facility Plan described above provides the anticipated wastewater treatment capacity needs of Westtown Township for the next 10 years and is part of Westtown's comprehensive program of pollution control and water quality management,

I, Evelyn L. Groff, Secretary, Westtown Township Board of Supervisors, hereby certify that the foregoing is a true copy of the Township Resolution No. 96-14, adopted October 21, 1996.






TOWNSHIP SEAL.

Center of the City



Source: Zones adapted from Zoning Map by
Urban Research and Development
Corporation for West Goshen
Township Planning Commission

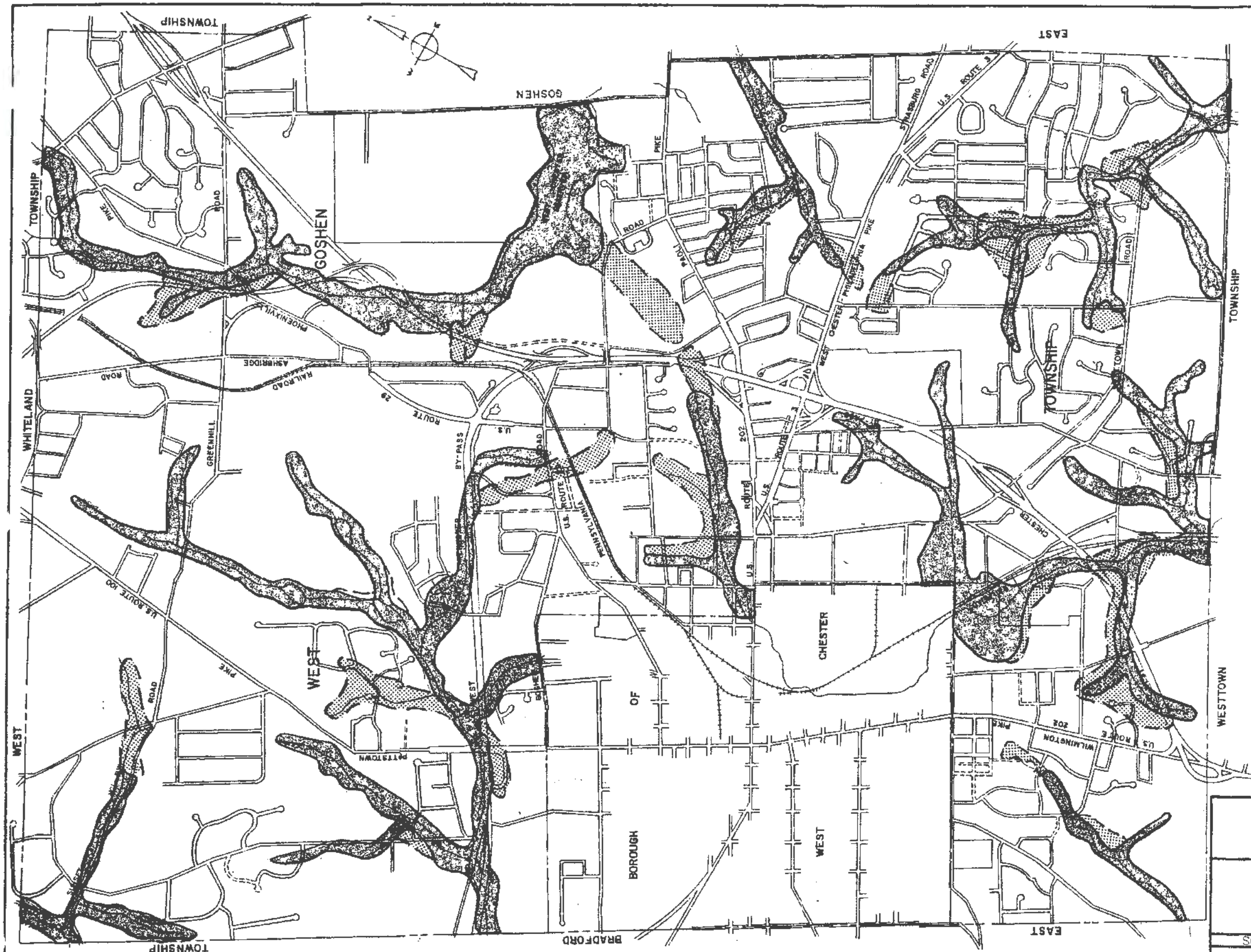
LEGEND

-  RESIDENTIAL
-  COMMERCIAL
-  INDUSTRIAL
-  PLANNED OFFICE PARK
-  MEDICAL SERVICE DISTRICT

WEST GOSHEN TOWNSHIP
CHESTER COUNTY, PENNSYLVANIA

GENERALIZED ZONING MAP

SCALE	DATE	FILE CODE	EXHIBIT No.
1"=2000'	APRIL 1992	89036.A	2-1
GLACE ASSOCIATES, INC., CAMP HILL, PENNA.			



LEGEND

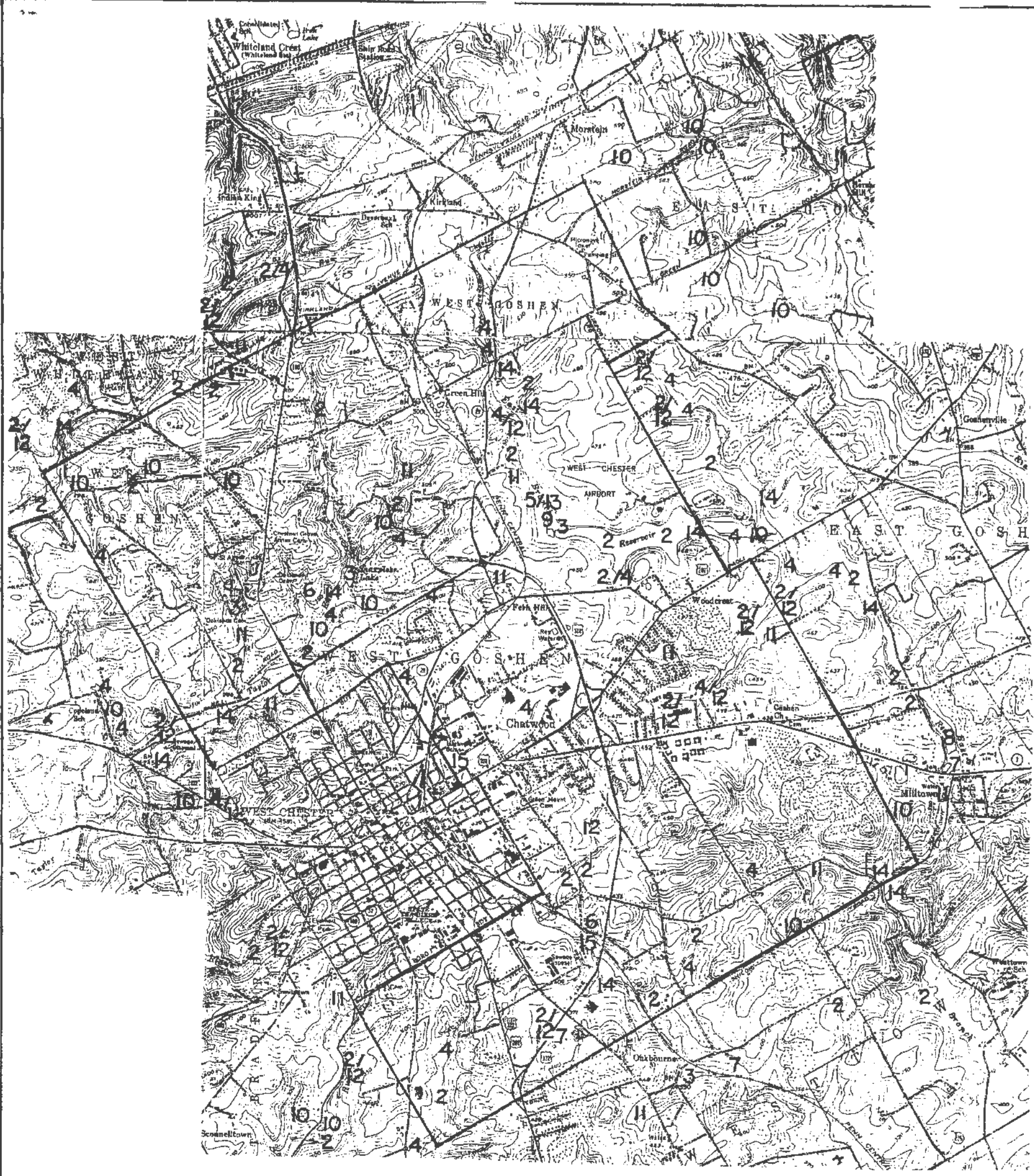
- 100 YEAR FLOOD ZONE
- ALLUVIAL SOILS AREA

Source: Zones adapted from Zoning Map by
Urban Research and Development
Corporation for West Goshen
Township Planning Commission

WEST GOSHEN TOWNSHIP
CHESTER COUNTY, PENNSYLVANIA

FLOOD PLAINS

SCALE	DATE	FILE CODE	EXHIBIT No.
1"=2000'	APRIL 1992	89036.A	2-2
GLACE ASSOCIATES, INC., CAMP HILL, PENNA.			

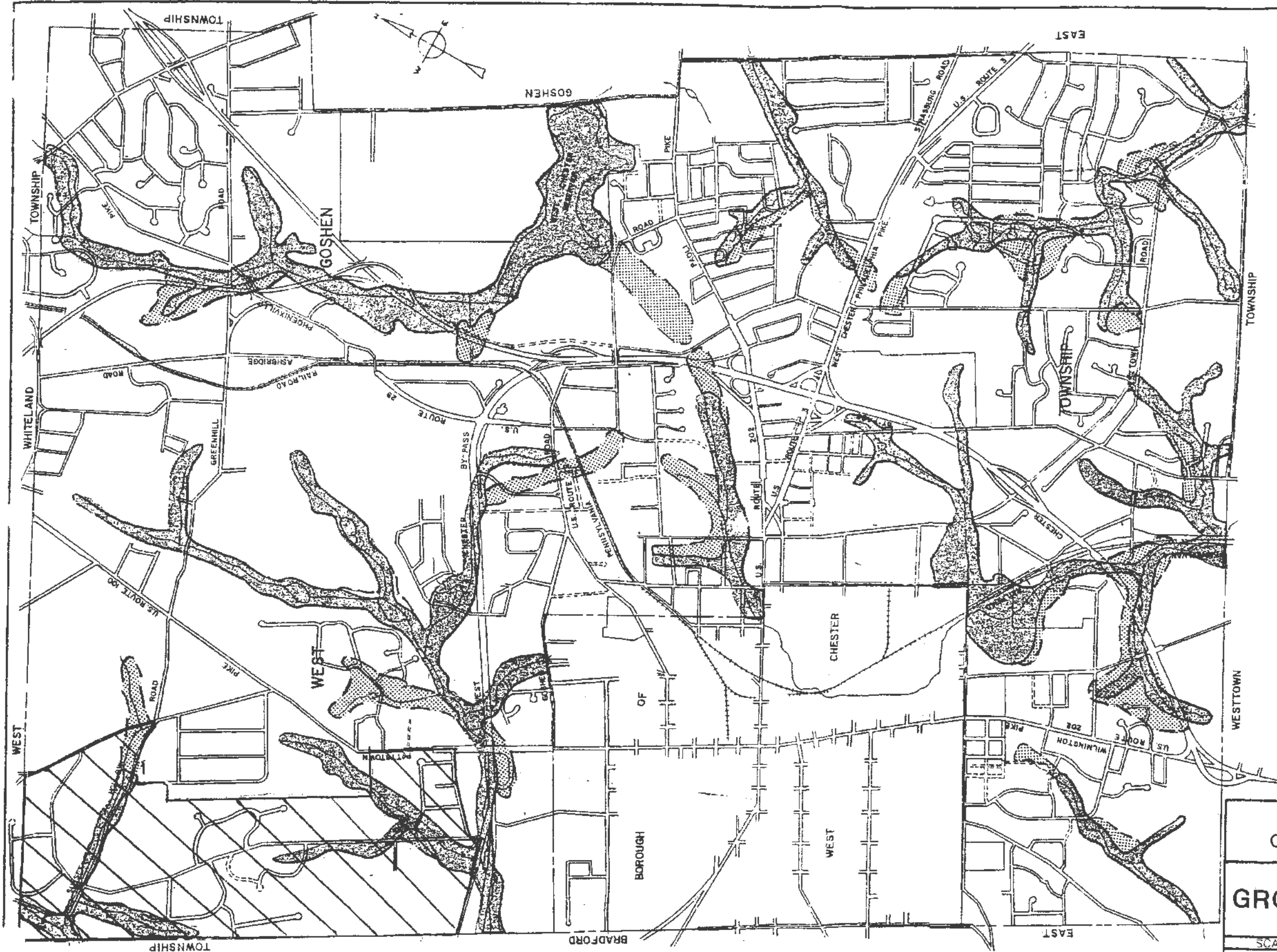


WEST GOSHEN TOWNSHIP CHESTER COUNTY, PENNSYLVANIA			
WETLANDS			
SCALE	DATE	FILE CODE	EXHIBIT NO.
1"=3100'	APRIL 1992	89036.A	2-3
GLACE ASSOCIATES, INC., CAMP HILL, PENNA.			




LEGEND

- | | | |
|----|--------|---|
| 1 | L10WHh | Lacustrine, Limnetic, Open Water, Permanent, Diked/Impounded. |
| 2 | PEM5A | Palustrine, Emergent, Narrow Leaved Persistent, Temporary. |
| 3 | PEM5C | Palustrine, Emergent, Narrow Leaved Persistent, Seasonal. |
| 4 | PFO1A | Palustrine, Forested, Broad Leaved Deciduous, Temporary. |
| 5 | PFO1C | Palustrine, Forested, Broad Leaved Deciduous, Seasonal. |
| 6 | POWF | Palustrine, Open Water/Unknown Bottom, Semipermanent. |
| 7 | POWFx | Palustrine, Open Water/Unknown Bottom, Semipermanent, Excavated. |
| 8 | POWHh | Palustrine, Open Water/Unknown Bottom, Permanent, Diked/Impounded. |
| 9 | POWZ | Palustrine, Open Water/Unknown Bottom, Intermittently Exposed/Permanent. |
| 10 | POWZh | Palustrine, Open Water/Unknown Bottom, Intermittently Exposed/Permanent, Diked/Impounded. |
| 11 | POWZx | Palustrine, Open Water/Unknown Bottom, Intermittently Exposed/Permanent, Excavated. |
| 12 | PSS1A | Palustrine, Scrub/Shrub, Broad Leaved Deciduous, Temporary. |
| 13 | PSS1C | Palustrine, Scrub/Shrub, Broad Leaved Deciduous, Seasonal. |
| 14 | R30WH | Riverine, Upper Perennial, Open Water/Unknown Bottom, Permanent. |
| 15 | R30WHx | Riverine, Upper Perennial, Open Water/Unknown Bottom, Permanent, Excavated. |

Source: National Wetlands Inventory, U.S. Department of Interior, Fish and Wildlife Service.



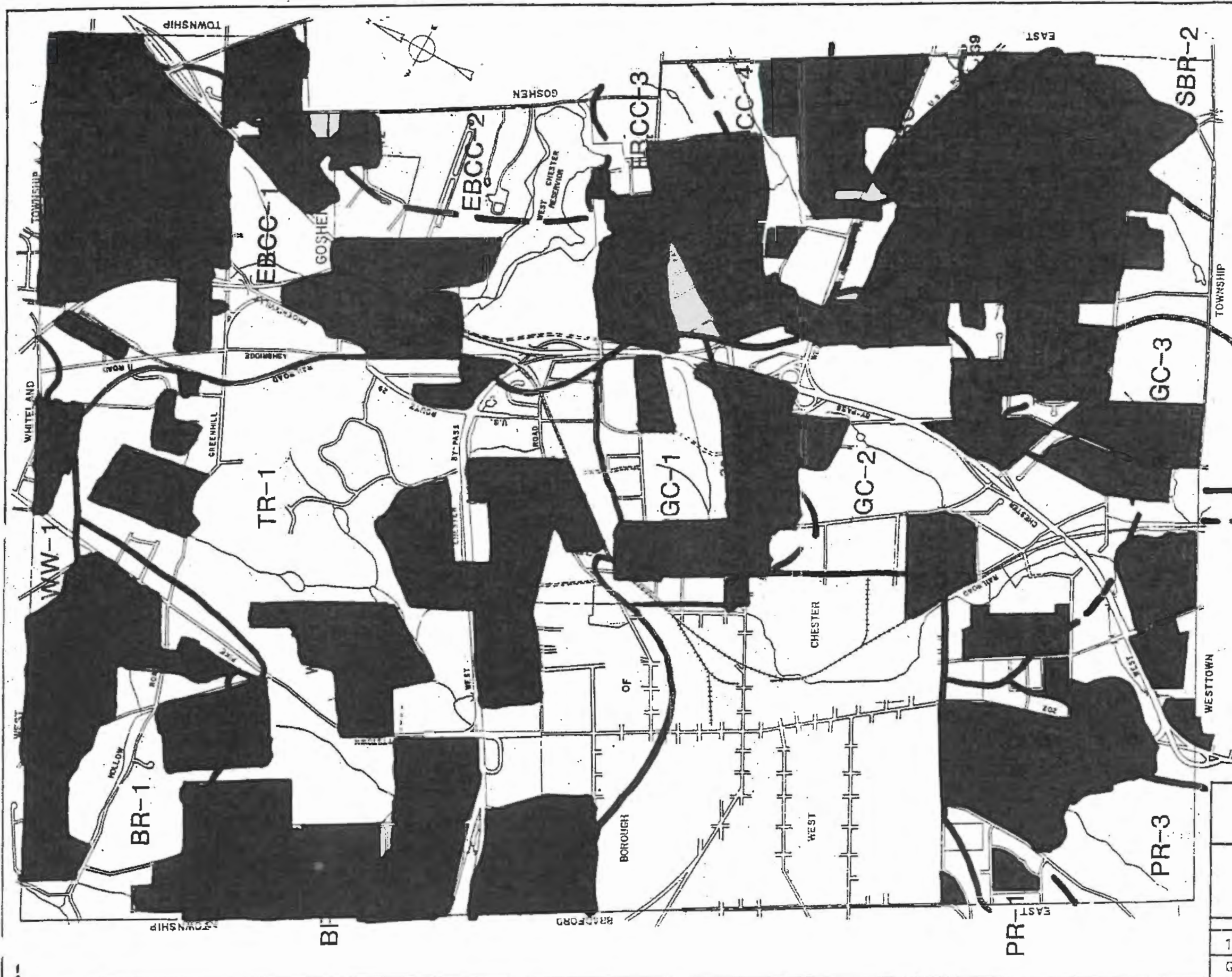
LEGEND

-  LOW DENSITY RESIDENTIAL
-  100 YEAR FLOOD ZONE
-  ALLUVIAL SOILS AREA

WEST GOSHEN TOWNSHIP
CHESTER COUNTY, PENNSYLVANIA

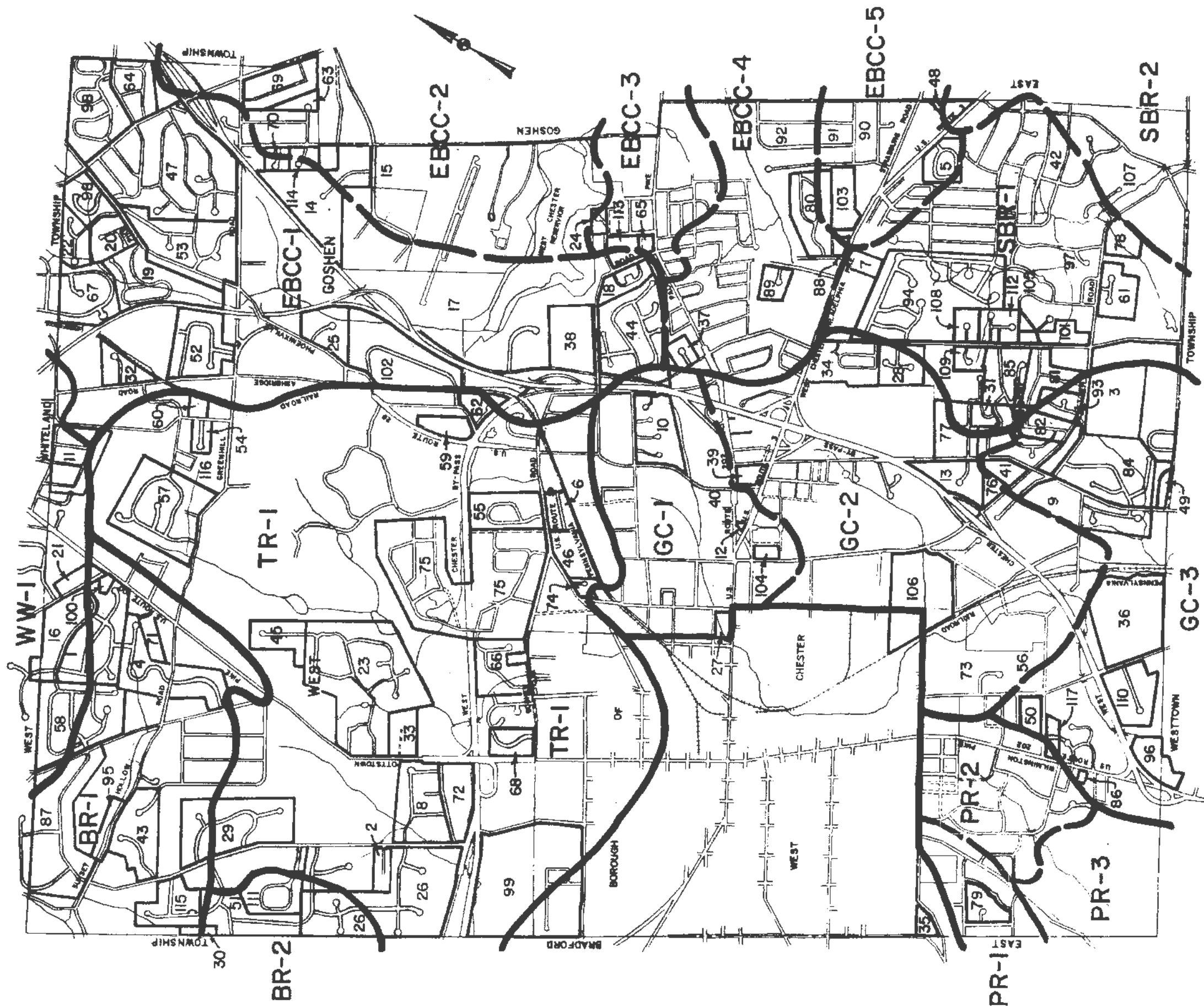
GROUND WATER RECHARGE

SCALE	DATE	FILE CODE	EXHIBIT No.
1"=2000'	APRIL 1992	89036.A	2-4
GLACE ASSOCIATES, INC., CAMP HILL, PENNA.			



- LEGEND**
- DRAINAGE AREA MAJOR DIVIDE
 - - - DRAINAGE AREA MINOR DIVIDE
 - PR - PLUM RUN
 - TR - TAYLOR RUN
 - GC - GOOSE CREEK
 - WW - WEST WHITELAND TOWNSHIP
 - SBR - STONY BROOK RUN
 - BR - BROAD RUN
 - EBCC - EAST BRANCH CHESTER CREEK

WEST GOSHEN TOWNSHIP CHESTER COUNTY, PENNSYLVANIA			
AREAS OF DEVELOPMENT SHADED			
SCALE	DATE	FILE CODE	EXHIBIT NO.
1"=2000'	APRIL 1992	89036.A	2-5A
GLACE ASSOCIATES, INC., CAMP HILL, PENNA.			



LEGEND

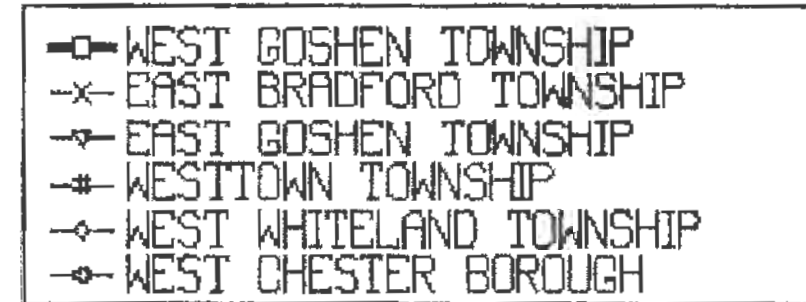
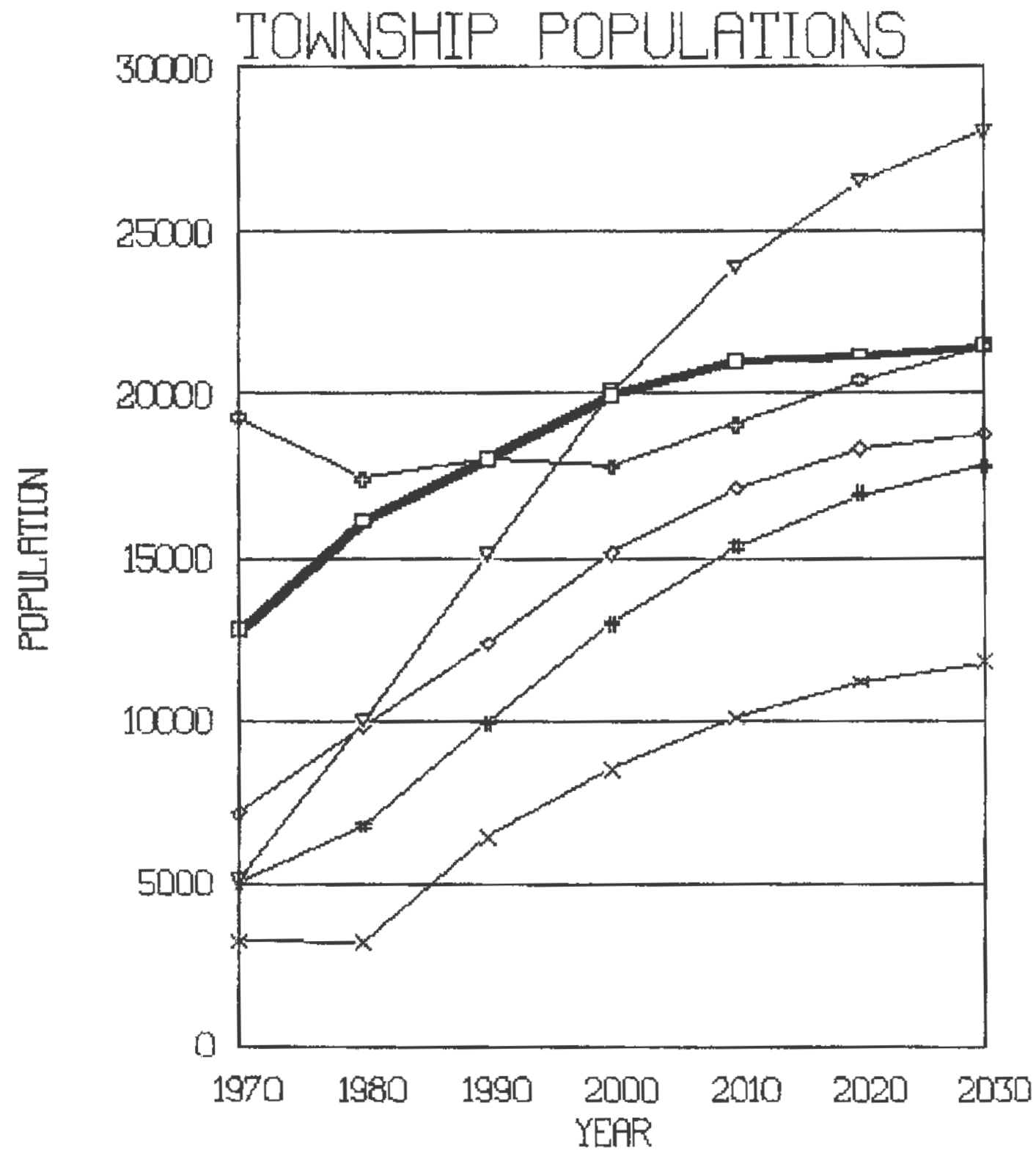
- DRAINAGE AREA MAJOR DIVIDE
- - - DRAINAGE AREA MINOR DIVIDE
- PR — PLUM RUN
- TR — TAYLOR RUN
- GC — GOOSE CREEK
- WW — WEST WHITELAND TOWNSHIP
- SBR — STONY BROOK RUN
- BR — BROAD RUN
- EBCC — EAST BRANCH CHESTER CREEK

NUMBERS OF SUBDIVISION CORRESPOND TO TABLE 2-6 OF REPORT.

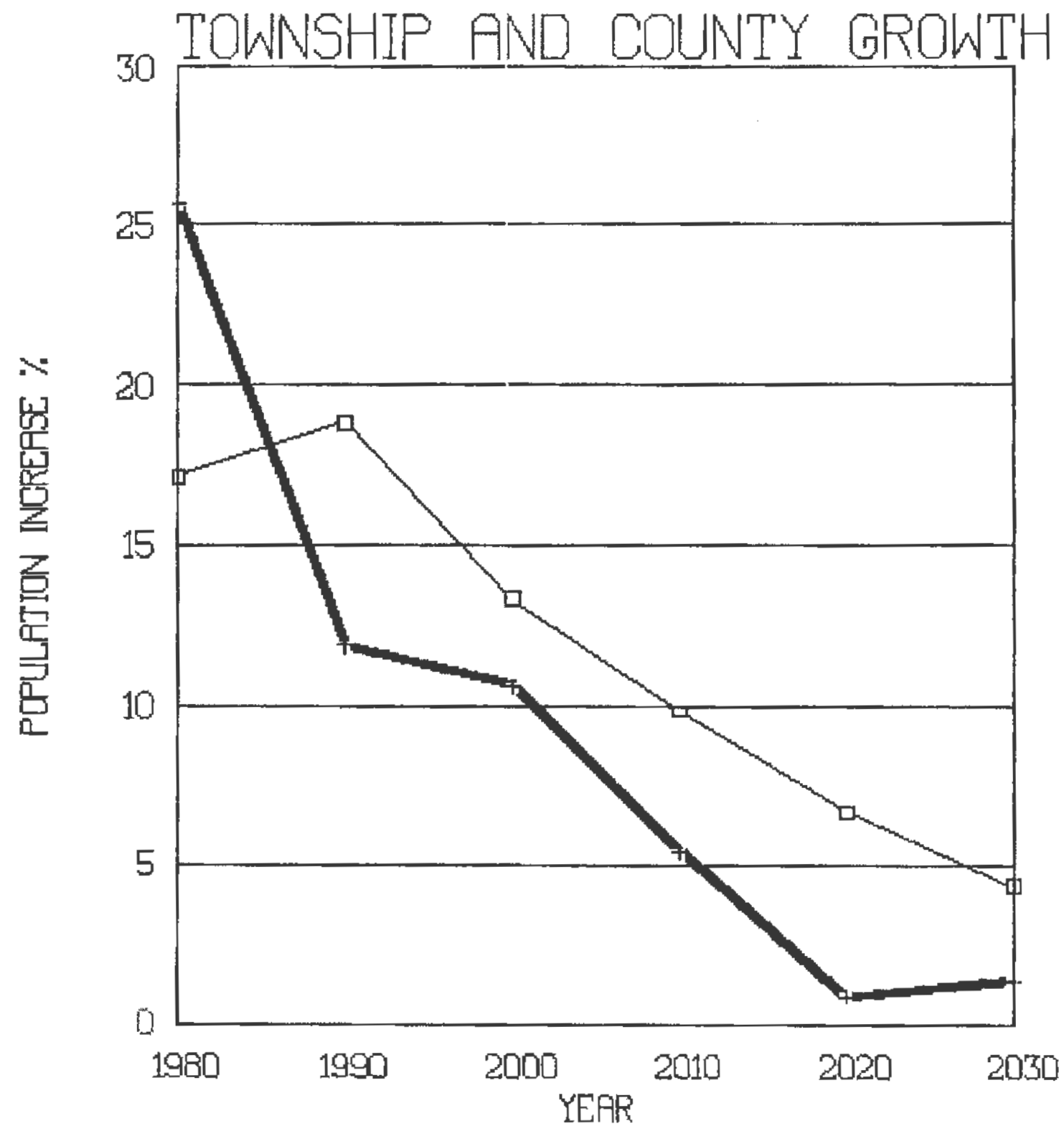
WEST GOSHEN TOWNSHIP
CHESTER COUNTY, PENNSYLVANIA

MAJOR SUBDIVISIONS

SCALE	DATE	FILE CODE	PLAN NO.
1" = 2000'	MAR. 1996	89036.A	
GLACE ASSOCIATES, INC., CAMP HILL, PENNA.			



WEST GOSHEN TOWNSHIP CHESTER COUNTY, PENNSYLVANIA			
POPULATION CHART			
SCALE	DATE	FILE CODE	EXHIBIT No.
1"=2000'	APRIL 1992	89036.A	2-6A
GLACE ASSOCIATES, INC., CAMP HILL, PENNA.			

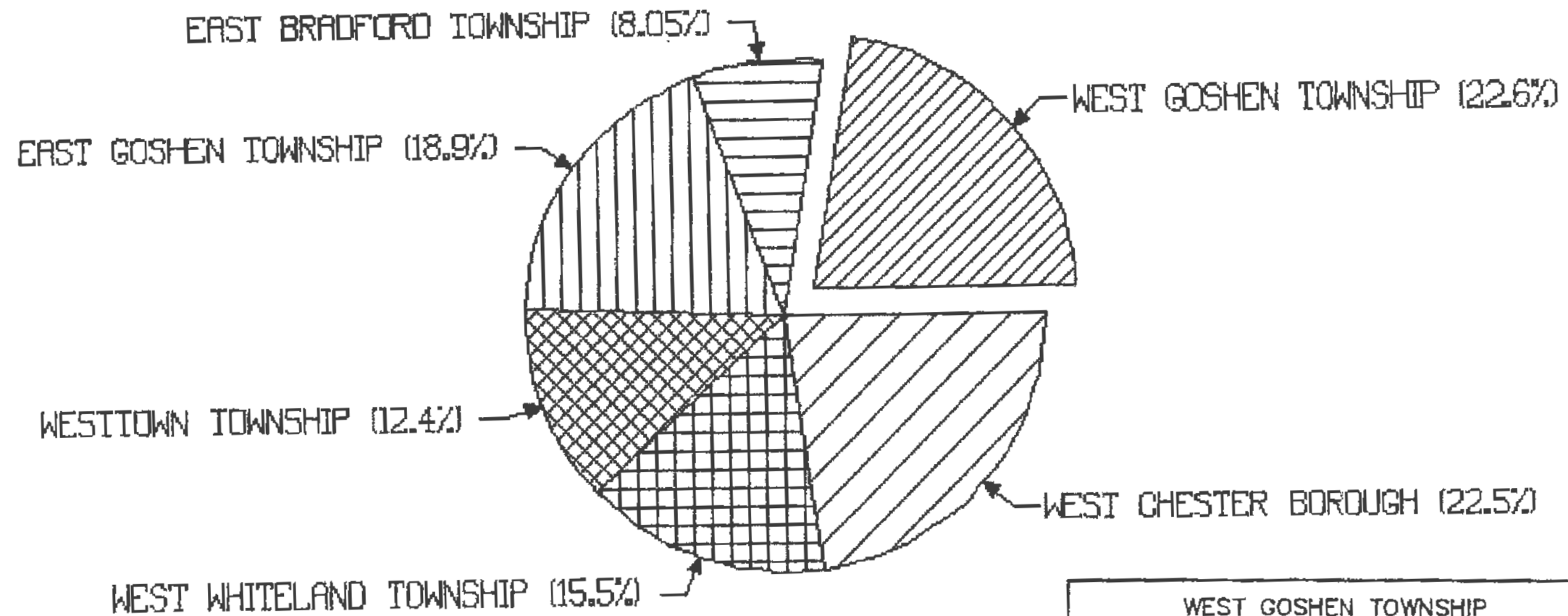


—+— WEST GOSHEN TOWNSHIP
 -□- CHESTER COUNTY

WEST GOSHEN TOWNSHIP CHESTER COUNTY, PENNSYLVANIA			
POPULATION CHART			
SCALE	DATE	FILE CODE	EXHIBIT No.
1"=2000'	APRIL 1992	89036.A	2-6B
GLACE ASSOCIATES, INC., CAMP HILL, PENNA.			

TOWNSHIP POPULATION

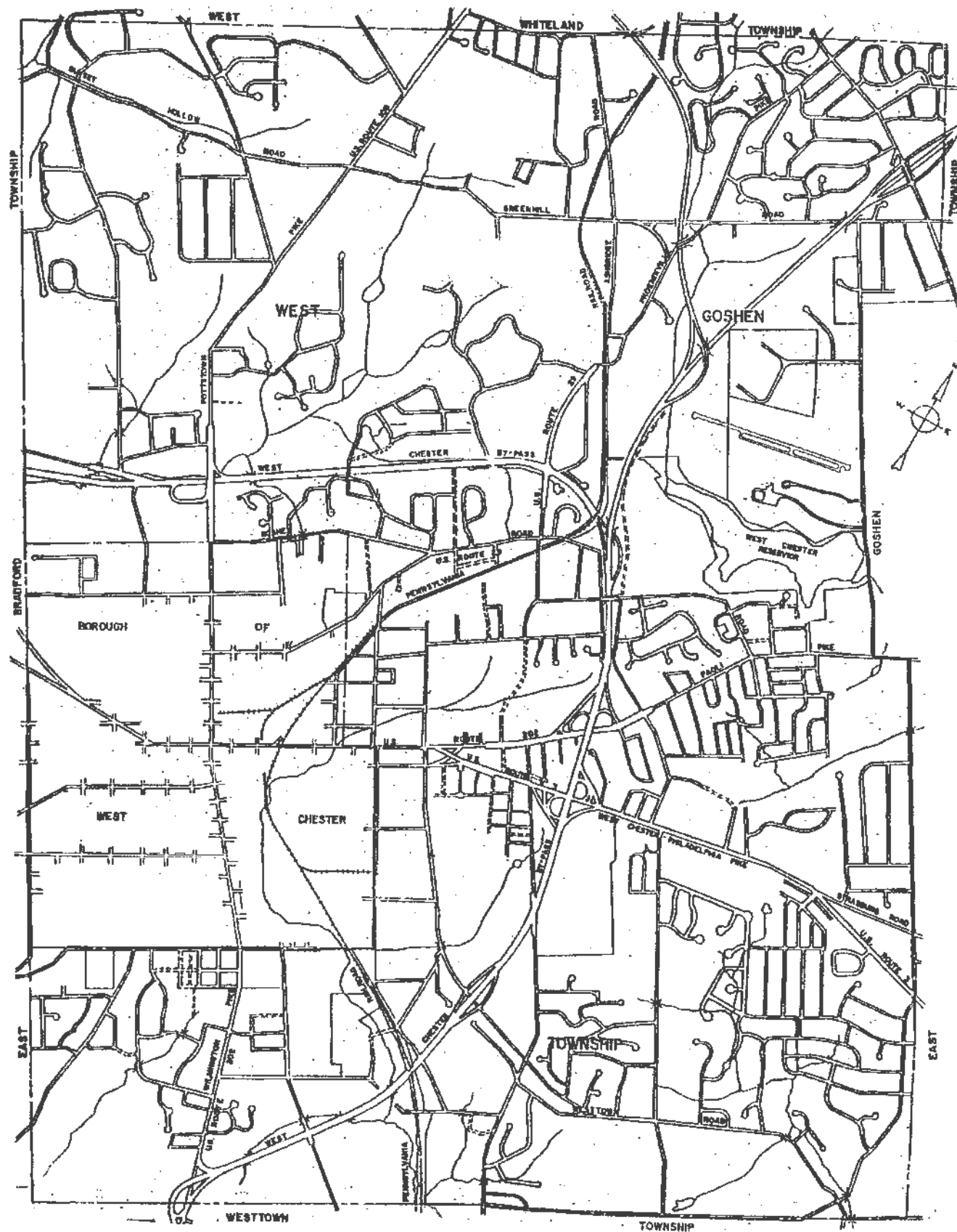
1990 FIGURES



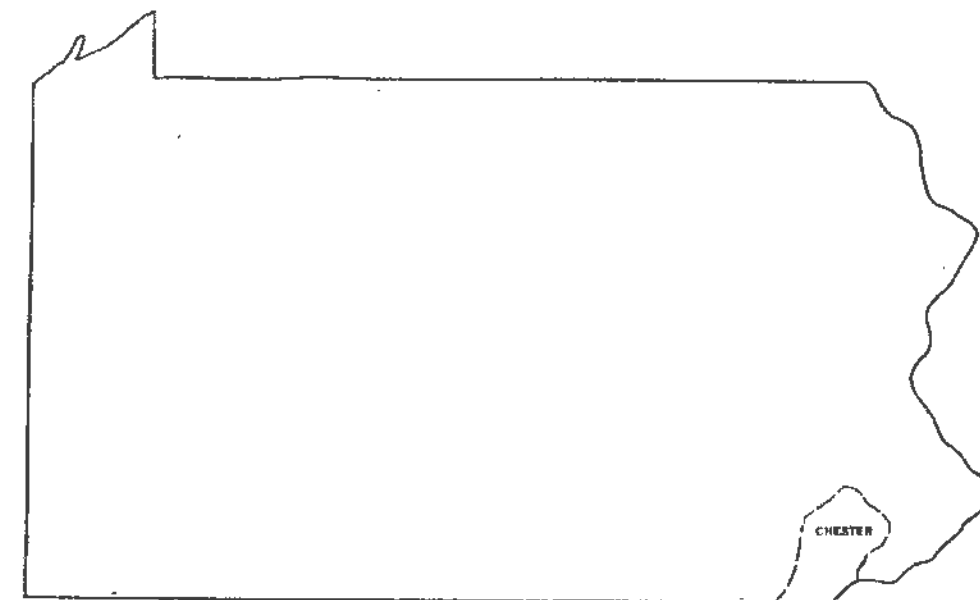
WEST GOSHEN TOWNSHIP
CHESTER COUNTY, PENNSYLVANIA

POPULATION CHART

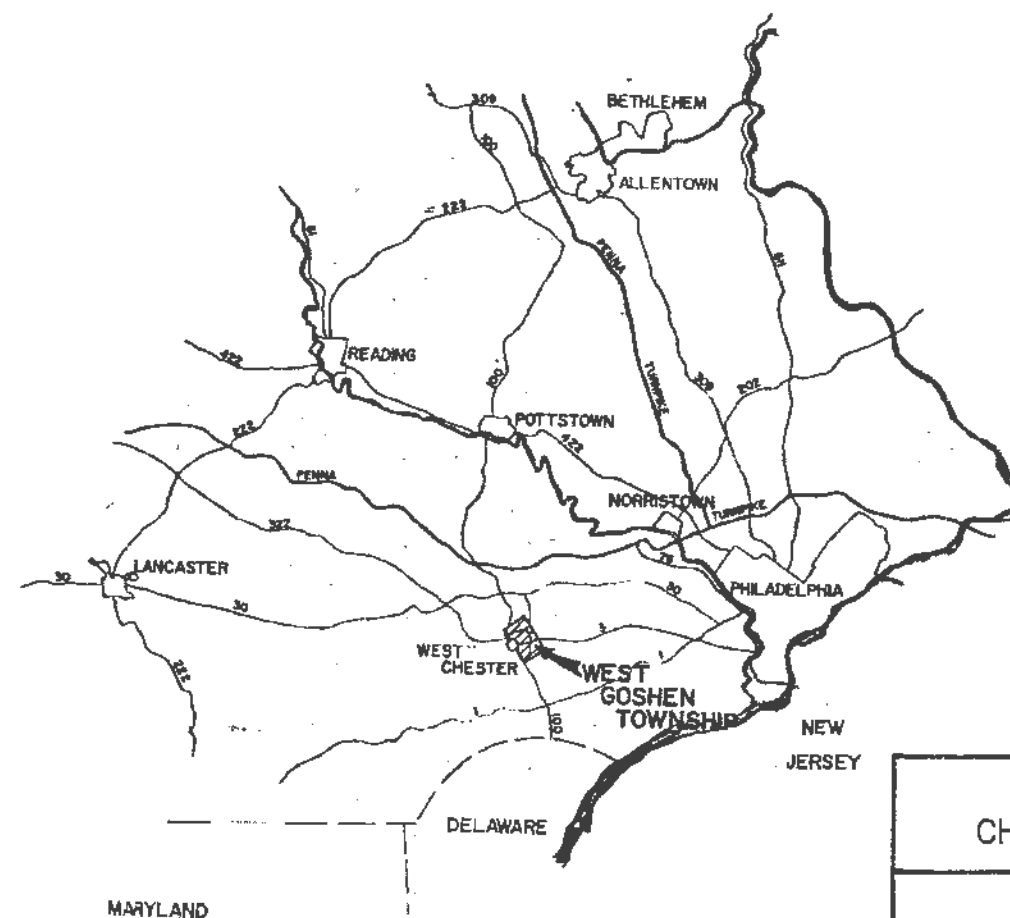
SCALE	DATE	FILE CODE	EXHIBIT No.
1"=2000'	APRIL 1992	89036.A	2-6C
GLACE ASSOCIATES, INC., CAMP HILL, PENNA.			



1"=2650'



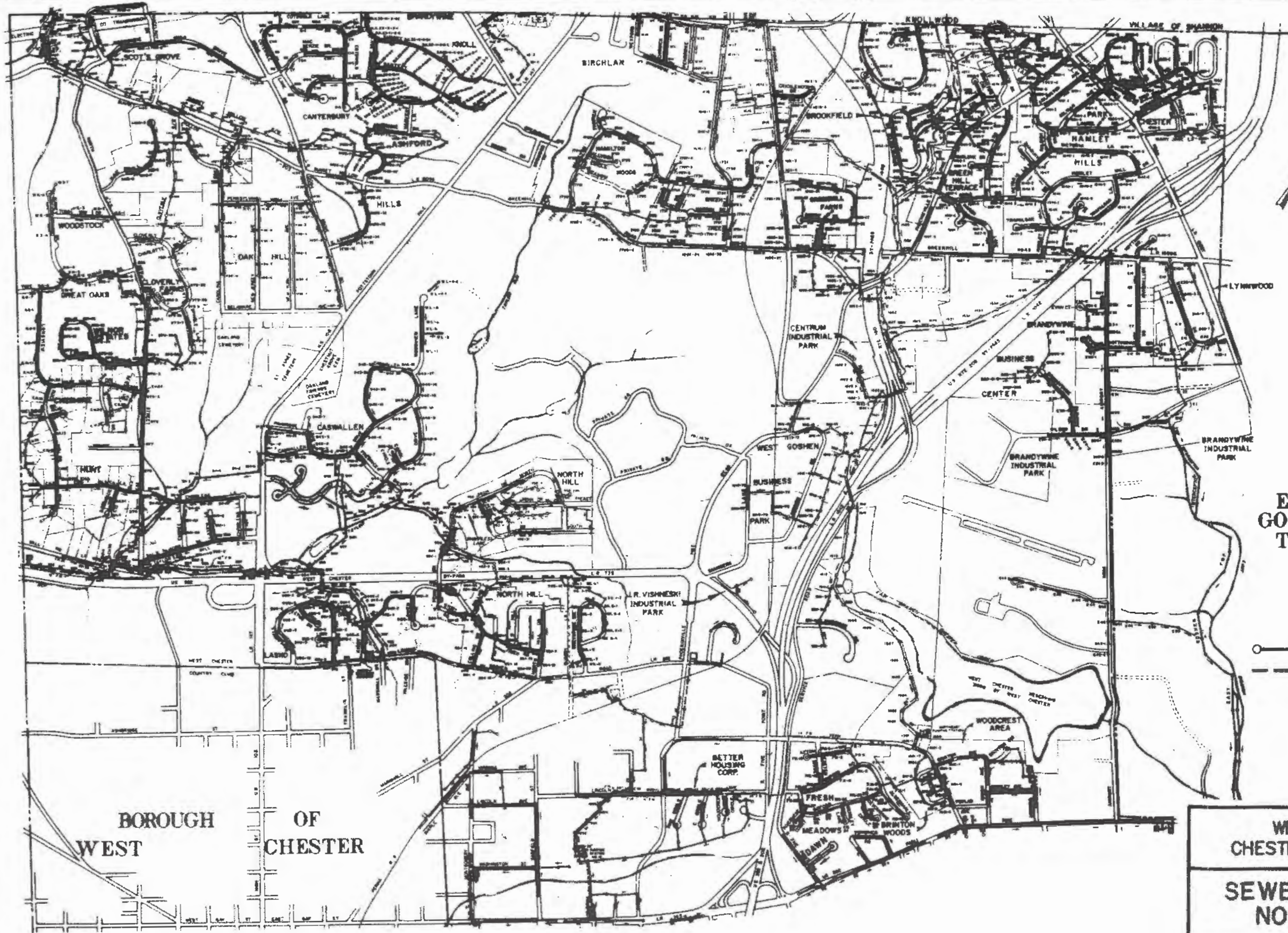
PENNSYLVANIA



WEST GOSHEN TOWNSHIP
CHESTER COUNTY, PENNSYLVANIA

GENERAL LOCATION PLAN

SCALE	DATE	FILE CODE	EXHIBIT No.
AS SHOWN	APRIL 1992	89036.A	2-7
GLACE ASSOCIATES, INC., CAMP HILL, PENNA.			



**EAST
GOSHEN
TWP.**

LEGEND

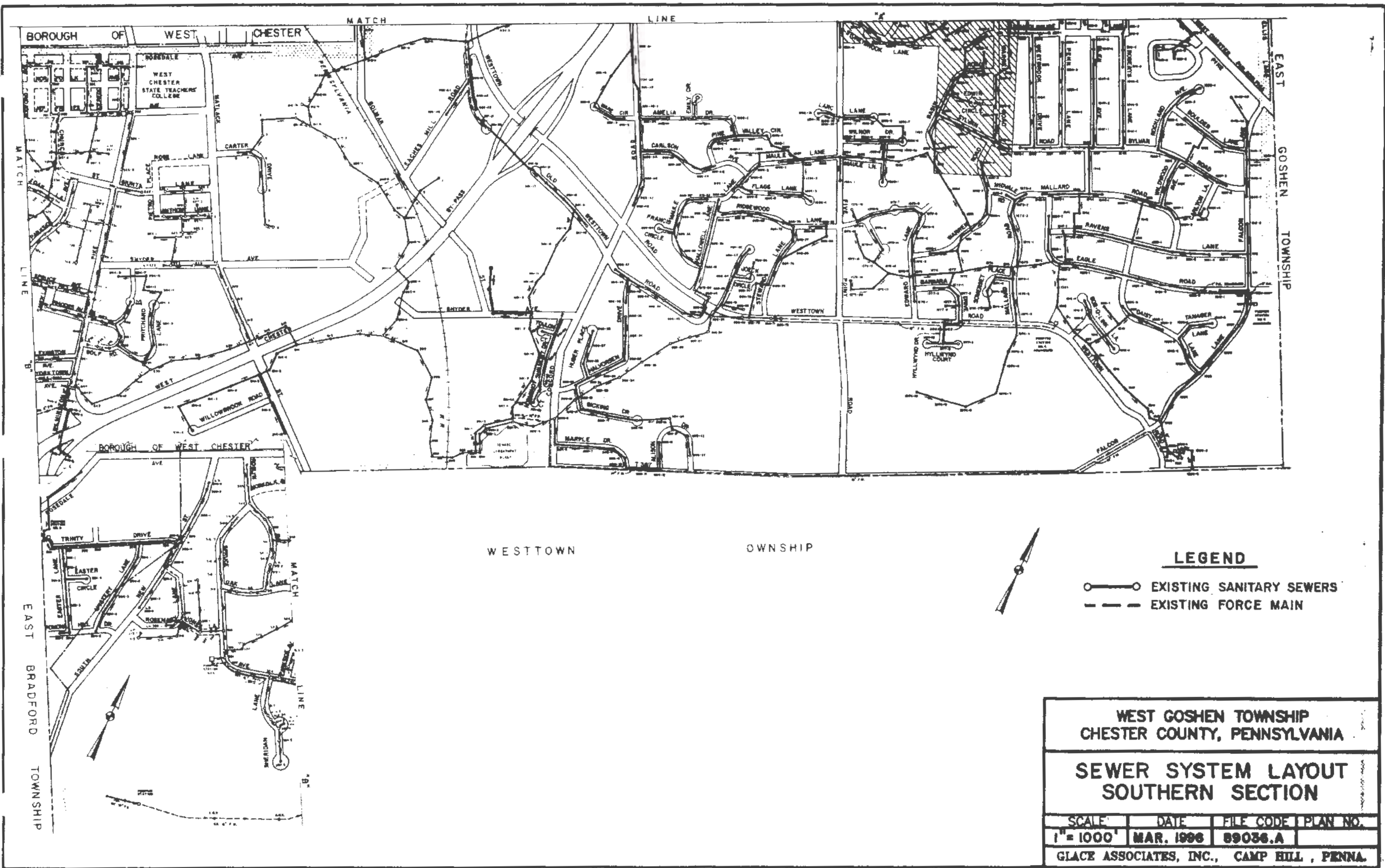
- EXISTING SANITARY SEWERS
- - - EXISTING FORCE MAIN

**BOROUGH
WEST OF
CHESTER**

**WEST GOSHEN TOWNSHIP
CHESTER COUNTY, PENNSYLVANIA**

**SEWER SYSTEM LAYOUT
NORTHERN SECTION**

SCALE	DATE	FILE CODE	PLAN NO.
1" = 1000'	MAR. 1996	89036.A	
GLACE ASSOCIATES, INC., CAMP HILL, PENNA.			



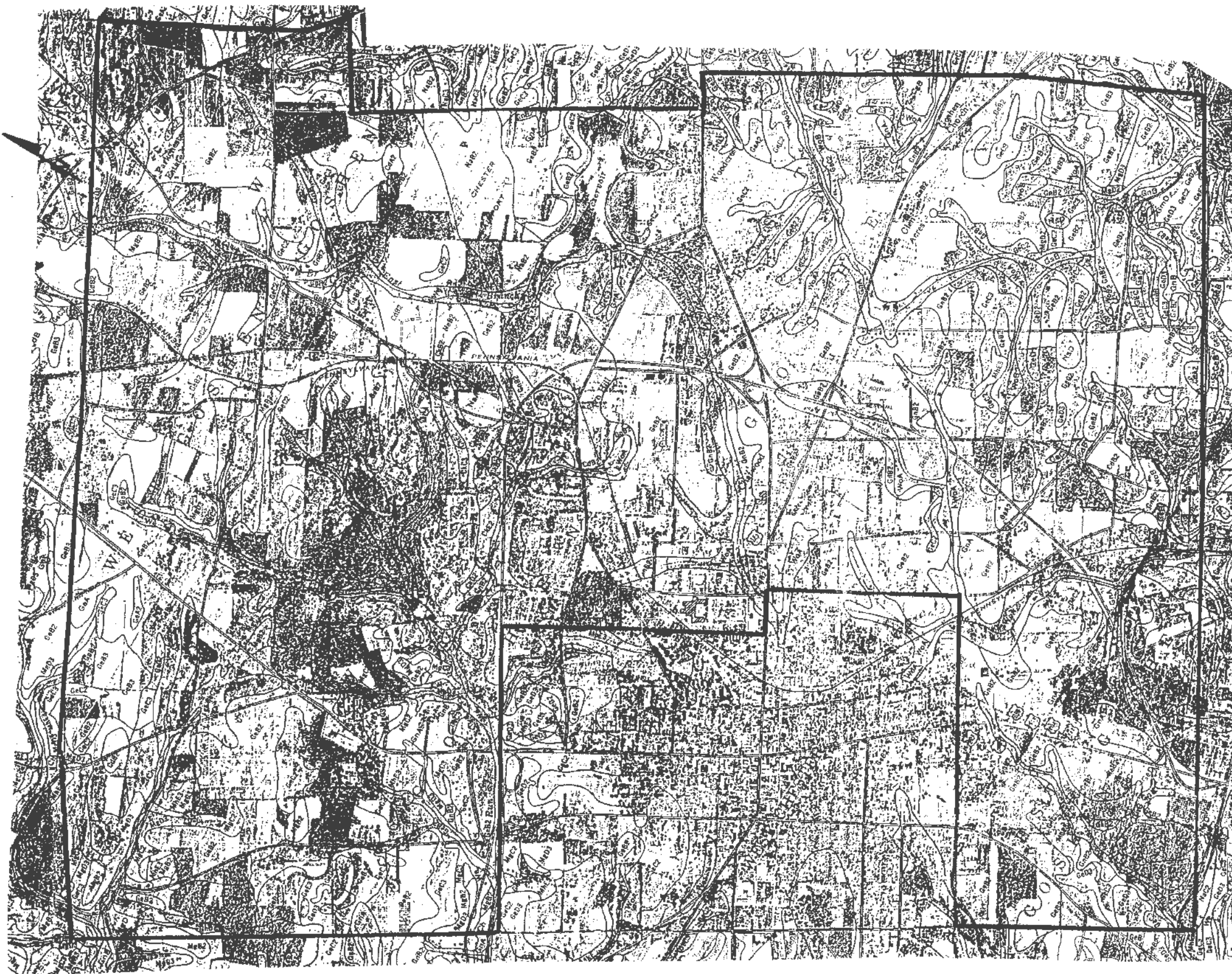
LEGEND

- EXISTING SANITARY SEWERS
- - - EXISTING FORCE MAIN

WEST GOSHEN TOWNSHIP
CHESTER COUNTY, PENNSYLVANIA

**SEWER SYSTEM LAYOUT
SOUTHERN SECTION**

SCALE	DATE	FILE CODE	PLAN NO.
1" = 1000'	MAR. 1996	89036.A	
GLACE ASSOCIATES, INC., CAMP HILL, PENNA.			



LEGEND

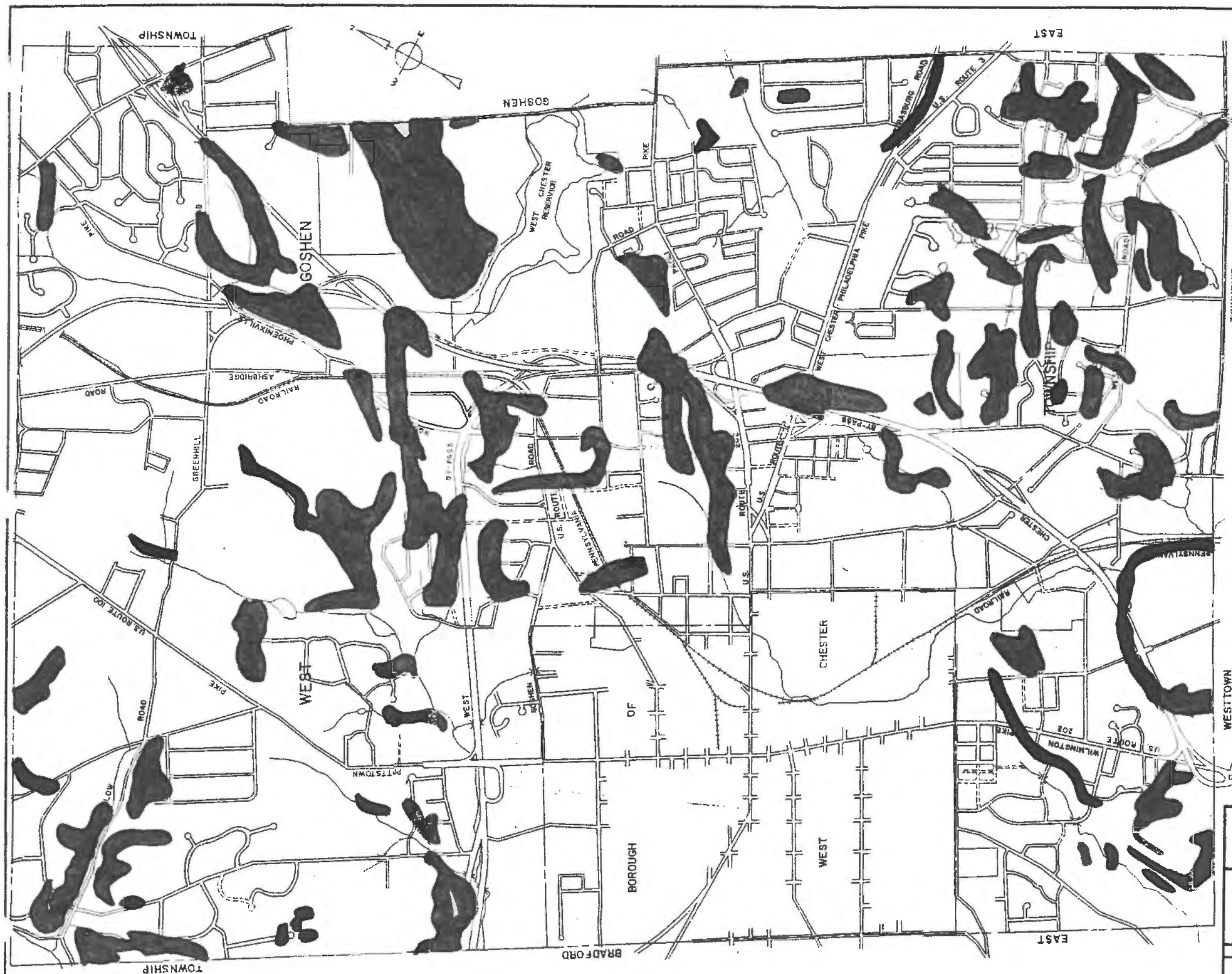
- CdA2 Chester Silt Loam, 0-3%, Moderately eroded
- CdB Chester Silt Loam, 3-8%
- CdB2 Chester Silt Loam, 3-8%, Moderately eroded
- CgB Chester Very Stony Silt Loam, 0-8%
- CgC Chester Very Stony Silt Loam, 8-15%
- Ch Chewacla Silt Loam
- CkB2 Chrome Grav. Silty Clay Lm, 3-8%, Mod. eroded
- CkC2 Chrome Grav. Silty Clay Lm, 8-15%, Mod. eroded
- CkC3 Chrome Grav. Silty Clay Lm, 8-15%, Sev. eroded
- CkD2 Chrome Grav. Silty Clay Lm, 15-25%, Mod. eroded
- CkE2 Chrome Grav. Silty Clay Lm, 25-40%, Mod. eroded
- GeA2 Glenelg Channery Silt Lm, 0-3%, Mod. eroded
- GeB Glenelg Channery Silt Loam, 3-8%
- GeB2 Glenelg Channery Silt Loam, 3-8%, Mod. Eroded
- GeC Glenelg Channery Silt Loam, 8-15%
- GeC2 Glenelg Channery Silt Lm, 8-15%, Mod. eroded
- GeC3 Glenelg Channery Silt Lm, 8-15%, Severely eroded
- GeD Glenelg Channery Silt Loam, 15-25%
- GeD2 Glenelg Channery Silt Lm, 15-25%, Mod. eroded
- GeD3 Glenelg Channery Silt Lm, 15-25%, Severely eroded
- GeE3 Glenelg Channery Silt Lm, 25-35%, Severely eroded
- GgB3 Glenelg Silt Loam, 3-8%, Severely eroded
- GnD Glenelg Very Stony Silt Loam, 15-25%
- GnA Glenville Silt Loam, 0-3%
- GnB Glenville Silt Loam, 3-8%
- GnB2 Glenville Silt Loam, 3-8%, Mod. eroded
- GnC2 Glenville Silt Loam, 8-15%, Mod. eroded
- GeB Glenville Very Stony Silt Loam, 0-8%
- MgB2 Manor Loam, 3-8%, Moderately eroded
- MgB3 Manor Loam, 3-8%, Severely eroded
- MgC Manor Loam, 8-15%
- MgC2 Manor Loam, 8-15%, Moderately eroded
- MgC3 Manor Loam, 8-15%, Severely Eroded
- MgD Manor Loam, 15-25%
- MgD2 Manor Loam, 15-25%, Moderately eroded
- MgD3 Manor Loam, 15-25%, Severely eroded
- MhE3 Manor Loam & Channery Lm, 25-35%, Severely eroded
- NaA Neshaminy Gravelly Silt Loam, 0-3%
- NaB2 Neshaminy Gravelly Silt Lm, 3-8%, Mod. eroded
- NsD Neshaminy Very Stony Silt Loam, 8-25%
- We Wehadkee Silt Loam
- WoA Worsham Silt Loam, 0-3%
- WoB Worsham Silt Loam, 3-8%
- WoB2 Worsham Silt Loam, 3-8%, Moderately eroded

SOURCE: Soil Survey of Chester and Delaware Counties

WEST GOSHEN TOWNSHIP CHESTER COUNTY, PENNSYLVANIA

SOILS

SCALE	DATE	FILE CODE	EXHIBIT No.
	APRIL 1992	89036.A	2-10
GLACE ASSOCIATES, INC., CAMP HILL, PENNA.			



LEGEND

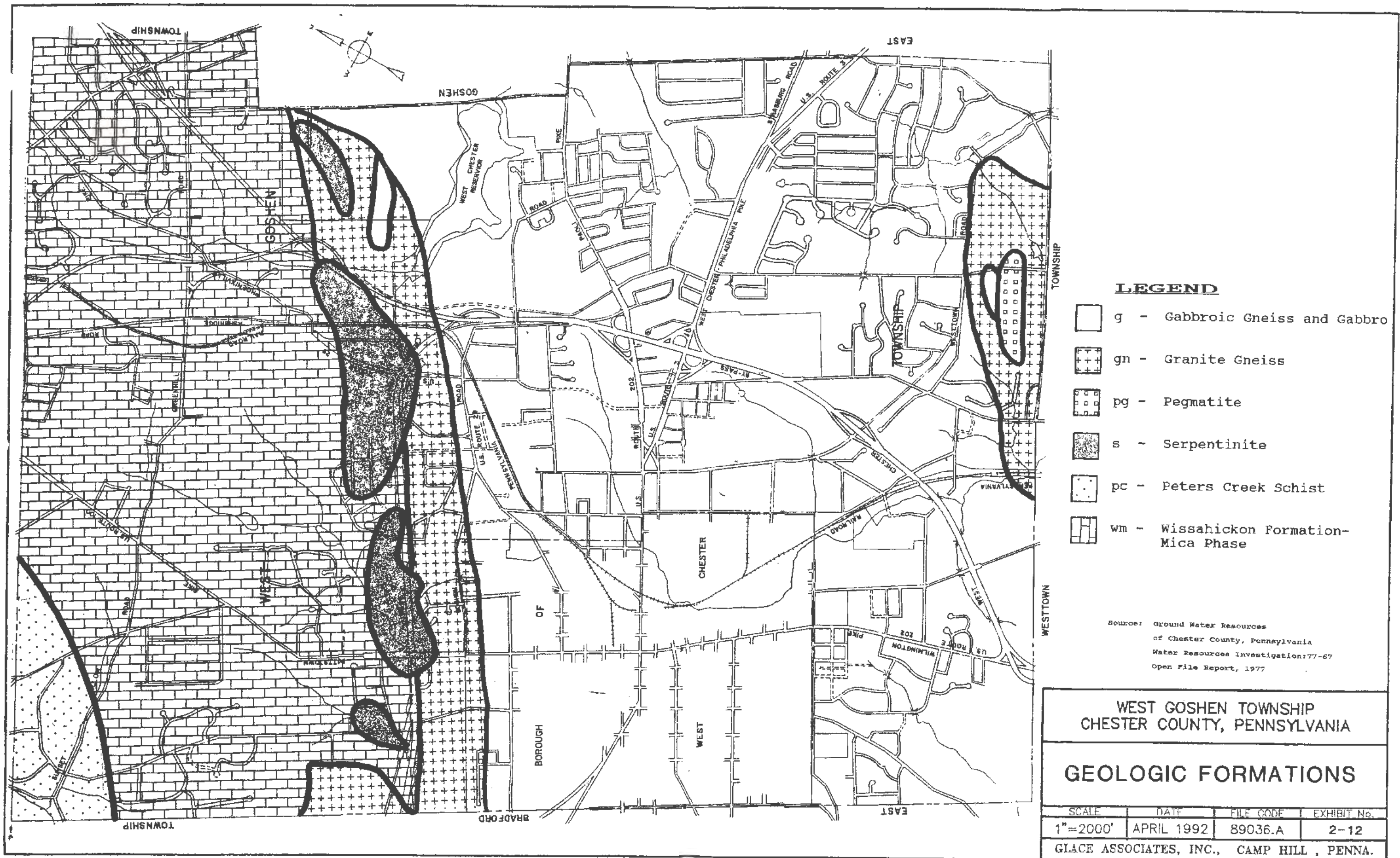
- SEVERE LIMITATIONS
- MODERATE LIMITATIONS

WEST GOSHEN TOWNSHIP
CHESTER COUNTY, PENNSYLVANIA

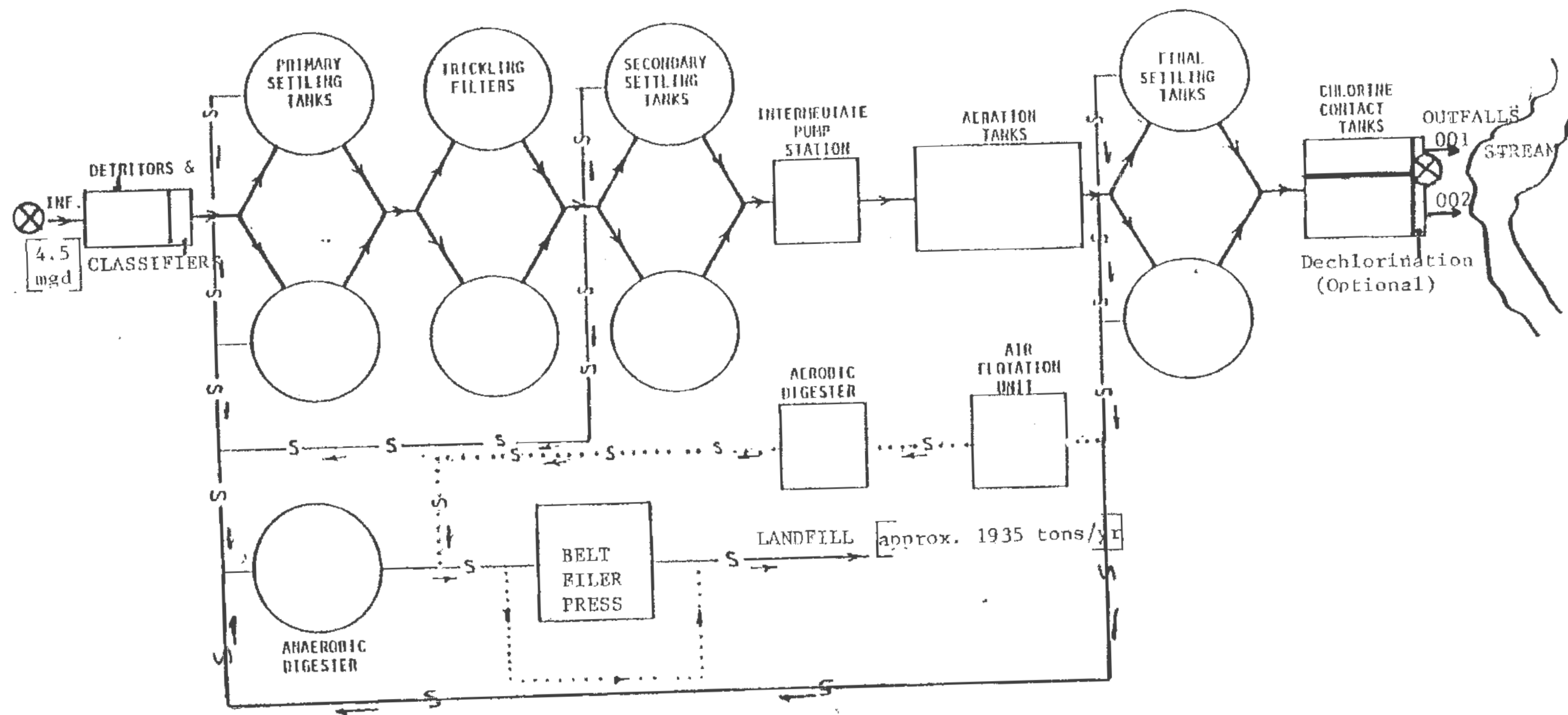
SOIL SUITABILITY FOR SEPTIC SYSTEM ABSORPTION AREA

SCALE	DATE	FILE CODE	EXHIBIT No.
1"=2000'	APRIL 1992	89036.A	2-11

GLACE ASSOCIATES, INC., CAMP HILL, PENNA.



WEST GOSHEN TREATMENT SCHEME



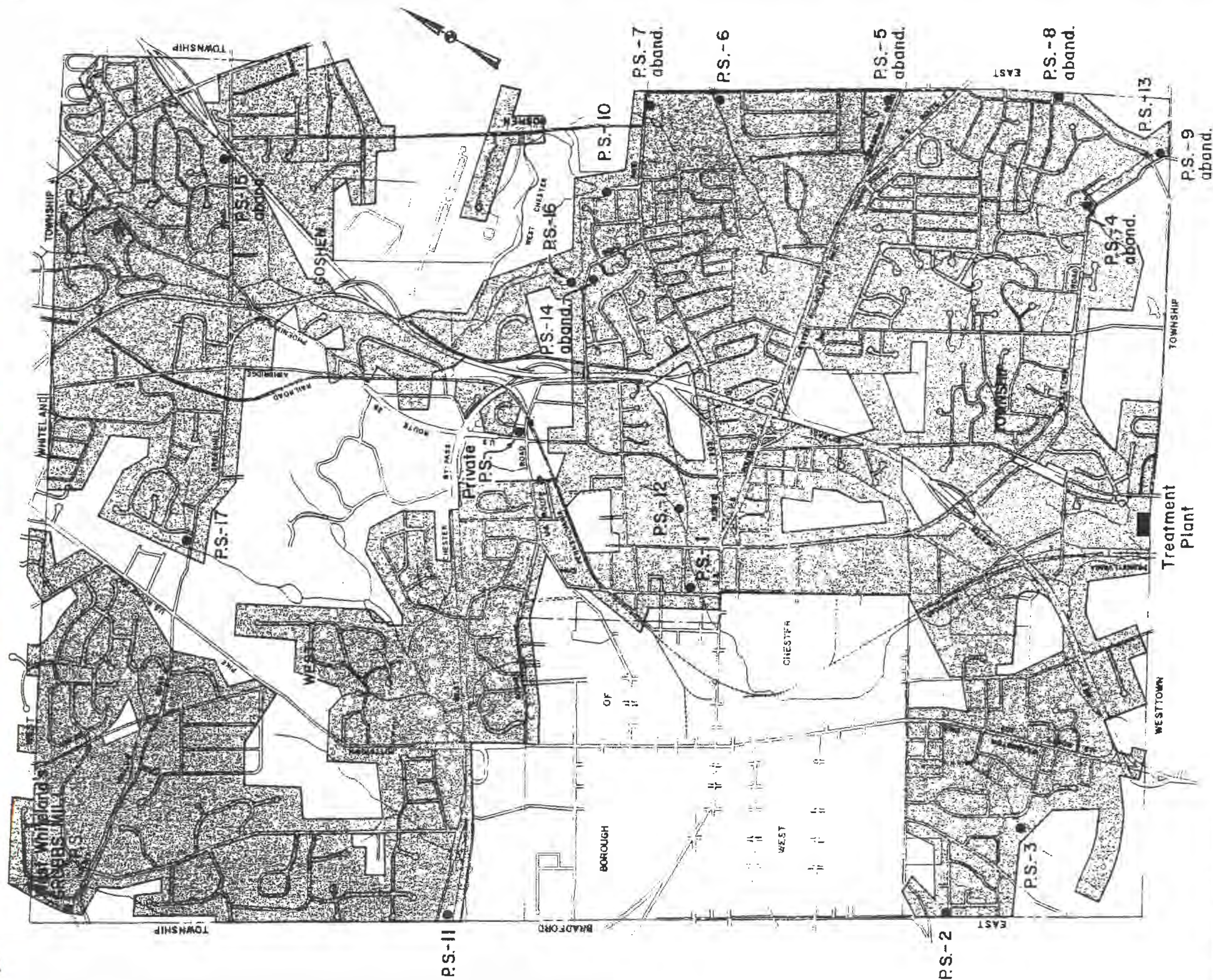
LEGEND

- MAIN FLOW
- S- SLUDGE
- ALTERNATIVE

WEST GOSHEN TOWNSHIP
CHESTER COUNTY, PENNSYLVANIA

TREATMENT PLANT SCHEMATIC

SCALE	DATE	FILE CODE	EXHIBIT No.
	APRIL 1992	89036.A	2-13
GLACE ASSOCIATES, INC., CAMP HILL, PENNA.			



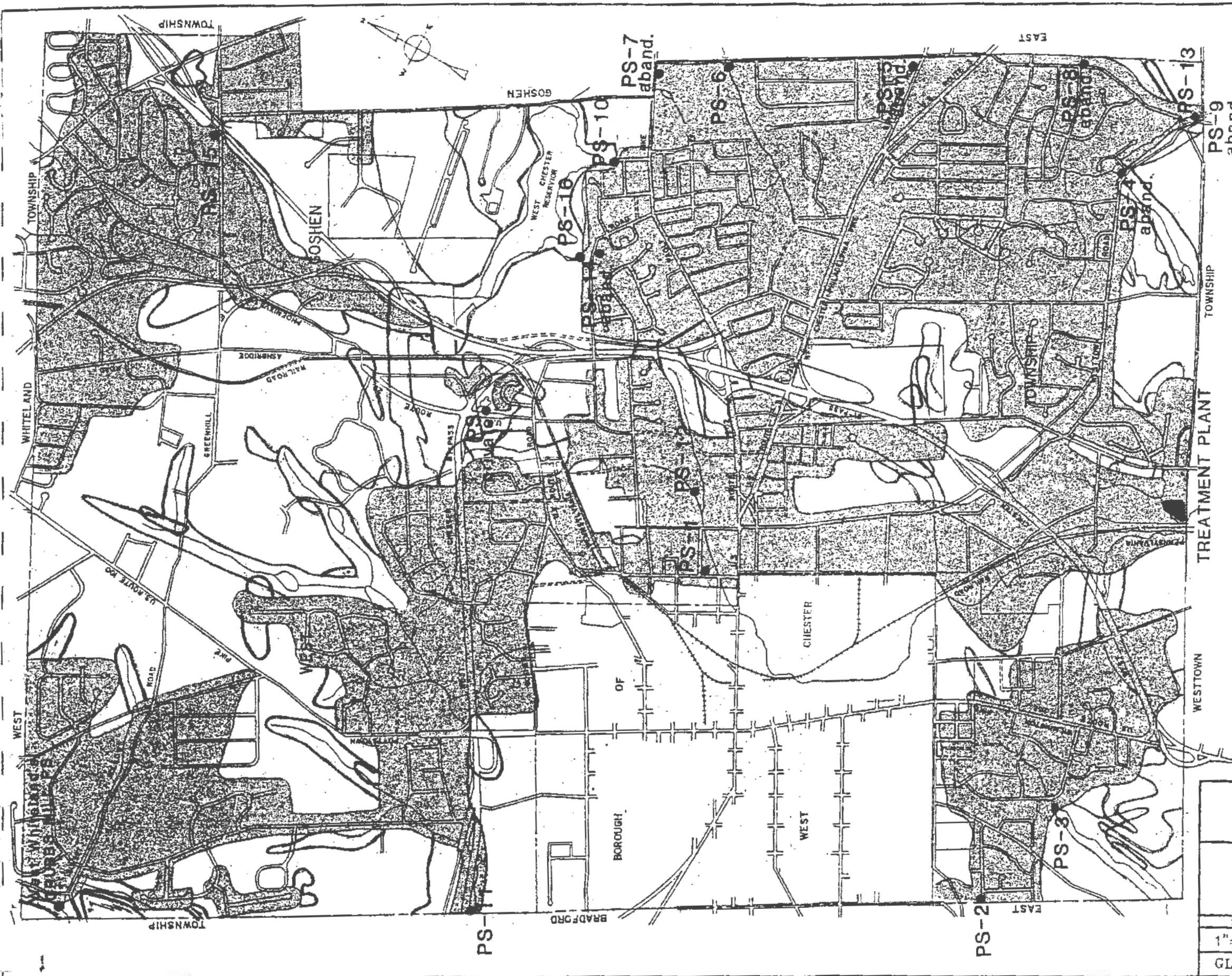
LEGEND

SEWER SERVICE AREA
PS PUMPING STATION

WEST GOSHEN TOWNSHIP
CHESTER COUNTY, PENNSYLVANIA

SEWER SERVICE AREAS

SCALE	DATE	FILE CODE	PLAN NO.
1" = 2000'	MAR. 1996	89036.A	
GLACE ASSOCIATES, INC., CAMP HILL, PENNA.			



LEGEND

- ☐ FLOOD PLAIN AND ALLUVIAL SOIL
- ☐ SEVERE SOILS LIMITATIONS*
- ☐ NONE LIMESTONE GEOLOGY**
- ☒ EXISTING SEWER SERVICE AREA

NOTES: * The entire township has moderate or severe soils limitations for septic system use, as shown in EXHIBIT 2-11.

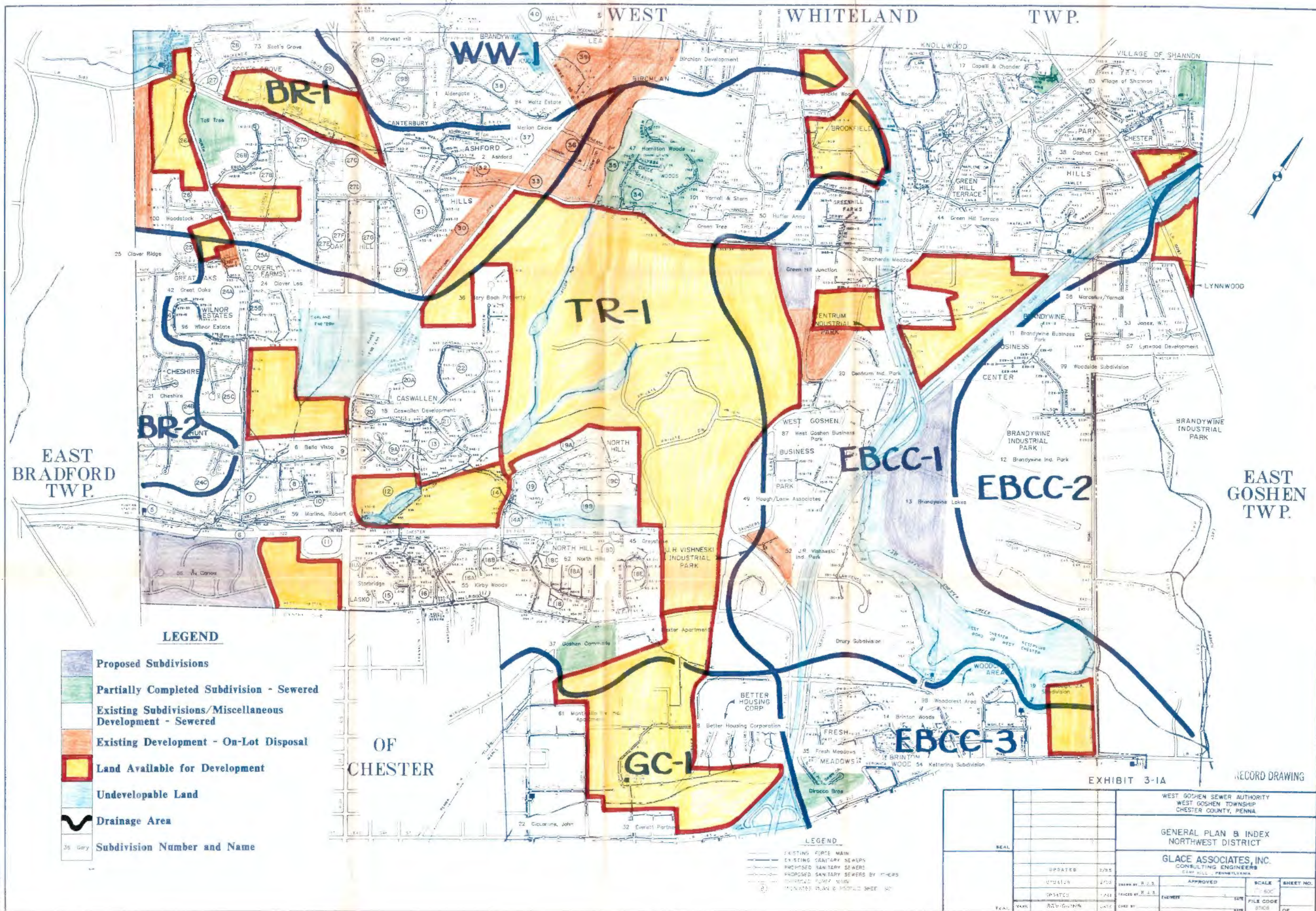
** No limestone geology existing in West Goshen Township, as shown in EXHIBIT 2-12.

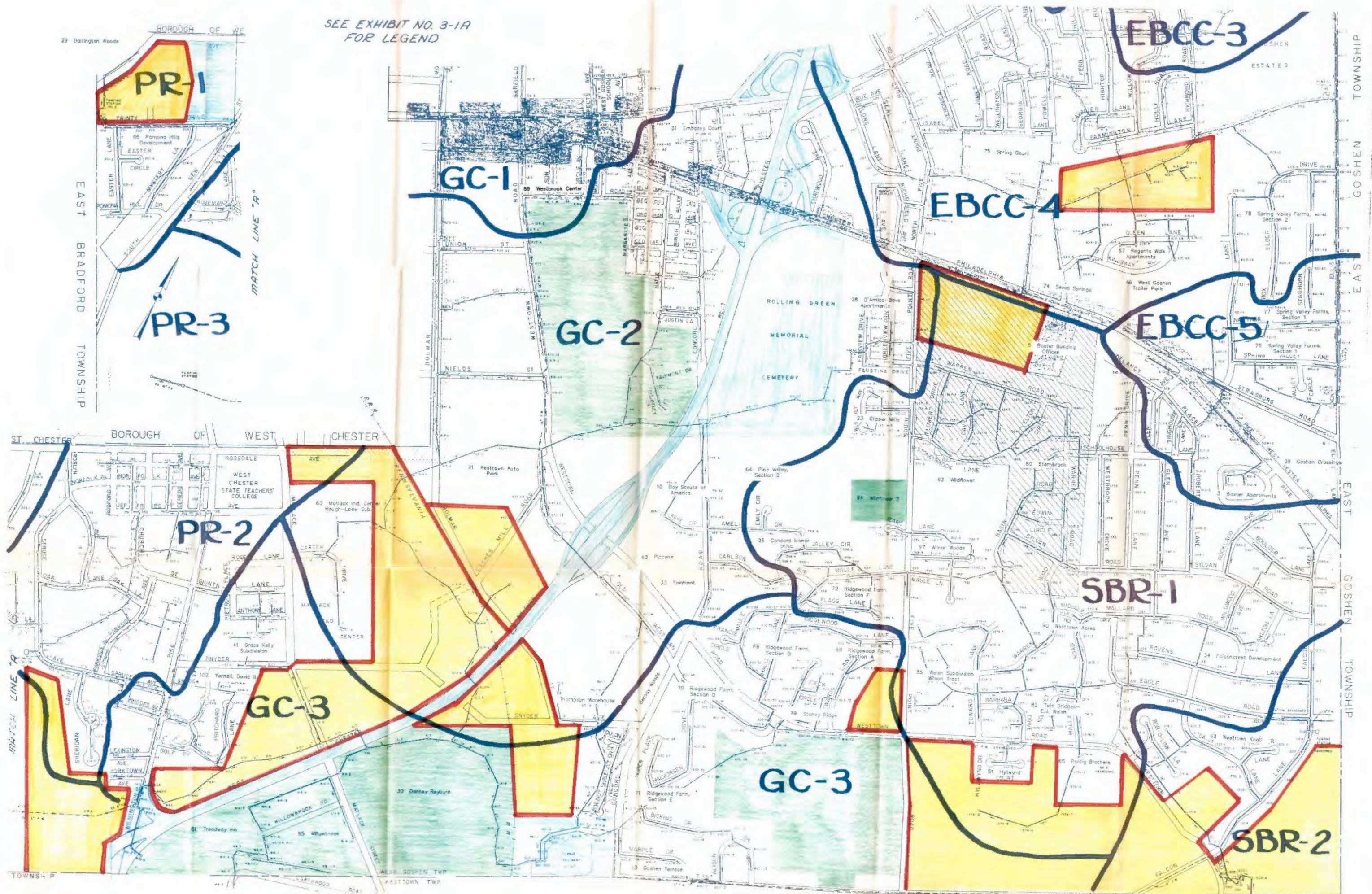
WEST GOSHEN TOWNSHIP
CHESTER COUNTY, PENNSYLVANIA

**POTENTIAL ON-LOT
DISPOSAL SYSTEM
MALFUNCTIONS**

SCALE	DATE	FILE CODE	EXHIBIT No.
1"=2000'	APRIL 1992	89036.A	2-15

GLACE ASSOCIATES, INC., CAMP HILL, PENNA.





APPENDIX A

**1995 MUNICIPAL
WASTELOAD MANAGEMENT REPORT**



Pennsylvania Department of Environmental Protection

Lee Park, Suite 6010
555 North Lane
Conshohocken, PA 19428
April 3, 1996

Southeast Regional Office

610-832-6130
Fax 610-832-6259

Ms. Alison J. Shuler
Glace Associates, Inc.
3705 Prindle Road
Camp Hill, PA 17011

Re: 1995 Chapter 94 Report
West Goshen Township
Sewer Authority
Chester County

Dear Ms. Shuler:

We have received your annual report, submitted in accordance with Section 94.12 of the Chapter 94 Municipal Wasteload Management Regulations.

If we have any comments or if additional information is needed, we will contact you.

Sincerely,

Lee Gemmill
Sanitarian Sewage Specialist
Water Management

cc: Re 30 (SMC)94

WEST GOSHEN SEWER AUTHORITY

CHESTER COUNTY, PENNSYLVANIA

1995 CHAPTER 94 REPORT MUNICIPAL WASTELOAD MANAGEMENT PLAN

MARCH 1996

GLACE ASSOCIATES, INC.

CONSULTING ENGINEERS
3705 TRINDLE ROAD
CAMP HILL, PENNSYLVANIA 17011

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 - B. ORGANIC LOADING PROJECTION
- II. PROPOSED PLAN TO REDUCE OVERLOAD
- III. INDUSTRIAL WASTES
- IV. SEWER EXTENSIONS
- V. OPERATION AND MAINTENANCE PROGRAM
- VI. SEWERAGE SYSTEM
- VII. PUMPING STATIONS
- VIII. SLUDGE DISPOSAL

APPENDICES

- 1. HYDRAULIC LOADING DATA
- 2. ORGANIC LOADING DATA
- 3. HYDRAULIC AND ORGANIC LOADING PROJECTIONS
- 4. HYDRAULIC LOADING GRAPH
- 5. ORGANIC LOADING GRAPH
- 6. CONTRIBUTING MUNICIPALITIES
 - A. EAST GOSHEN TOWNSHIP
 - B. WESTTOWN TOWNSHIP
 - C. WEST WHITELAND TOWNSHIP
- 7. SEWER EXTENSIONS, WEST GOSHEN TOWNSHIP

I. LOADING PROJECTIONS

A. HYDRAULIC LOADING PROJECTIONS

The calculations used to determine the five-year hydraulic loading projection for the West Goshen Wastewater Treatment Plant are submitted in Appendix 3 of this report. The basis for the projection is a combination of four factors:

1. Flow projections submitted by Westtown Township.
2. Flow projections submitted by East Goshen Township.
3. Flow projections for West Whiteland Township.
4. Anticipated population and subsequent flow projections for West Goshen Township.

The Township of West Goshen is experiencing a moderating² rate of growth of development as are the contributing municipalities. The projected average daily flow for the year 2000 has been calculated to be 4.039 mgd which corresponds to 0.461 mgd or 461,000 gpd average daily flow under the plant capacity of 4.5 mgd. At this current capacity, this flow projection indicates that the existing plant will be at 90% capacity by 2000. However, a plant upgrade of an additional 1.5 mgd is expected to be completed before the year 2000.

An examination of the maximum three-month average daily flows for the previous five years reveals a reasonably consistent relationship to the average daily flows. The maximum three-month average daily flow for the year of 2000 has been calculated to be 4.622 mgd. This projected overload condition is addressed in Section II, "Proposed Plan to Reduce Overload."

B. ORGANIC LOADING PROJECTIONS

The organic loading projection has been based on the projected hydraulic loadings and the 1995 average daily BOD₅ concentration of 248 mg/l and cBOD₅ concentration of 112 mg/l. The organic loading for the year 2000 has been projected at 8,842 pounds per day which is over the design capacity of 7,640 pounds per day for total BOD. The organic loading in 1995 was already over the permitted capacity, however, this over-loading is in question. Please refer to Section II, "Proposed Plan to Reduce Overload"

II. PROPOSED PLAN TO REDUCE OVERLOAD

A. Hydraulic Overload

Peak flows have caused no major operational problems at the sewage treatment plant, due to the ability of the trickling filters to sustain occasional shock loads. West Goshen Township is closely monitoring the flows from the contributing municipalities and informing them on a monthly basis as to their metered flows and comparing actual flow figures to the reserve treatment capacity held by each municipality. The municipalities have taken accelerated efforts towards reducing infiltration and inflow (I&I) into their respective collection systems and pledged to continue their aggressive I&I detection programs.

West Goshen Township enacted a voluntary sewage management plan. Each tributary municipality is to report on their sewer extension projects quarterly. The proposed connections are to be given a priority and tracked as to the completion rate.

West Goshen Township has nearly completed an Act 537 Plan. A revised draft is before the Boards. Upon their approval, the Act 537 Plan will be available for the public comment review periods which take a period of 60 days. Assuming no major changes from the com-

ments periods, the Plan should be submitted to the Department of Environmental Protection in the summer of 1996.

The Act 537 Plan addresses the increase of capacity at the plant of 1,500,000 gpd. This will increase the present capacity of 4.5 mgd to 6.0 mgd. The additional flow will be distributed to the municipalities such that; West Goshen Township will have an additional 800,000 gpd, Westtown Township 300,000 gpd, West Whiteland Township and East Goshen Township 200,000 gpd each.

The alternative chosen by the Township/Authority is to modify or add the following treatment units:

1. New Headworks and Equalization Facility
2. Modify Trickling Filter Box, Tanks and Replace Media
3. New Aeration Tank
4. New Final Clarifier and Modify Distribution Box
5. Additional Blowers

The construction project should begin immediately after approval of the Act 537. It is anticipated construction should be complete in 1998.

B. Organic Overload

Split influent samples were tested for BOD₅ and cBOD₅ to determine the correlation to the organic loading and the plant efficiency for removal of the organic loading. Influent test results indicated a significant difference between the analyses, even though, the plant has experienced no upsets for what appears to be a high organic loading. There has not been significant increase in sludge production and the plant efficiency rate has been and continues to be in the 90th percentile.

The plant's original application for Part II permit used the standard organic loading design criteria of 200 mg/l. However, after reviewing plant studies of treatment effectiveness and other O&M performance, the plant appears to be able to effectively treat a higher concentration. This may be partially due to the operation of the system in a series operations, that is the wastewater is treated by the trickling filters first than treated through the aeration system. Each system was designed to treat influent loadings of 200 mg/l. However, the series flow has reduced much of the organics in the trickling filters before entering the aeration tanks.

The organic overload does not create any problems except through this report. The plant is in compliance with the permit, as stated above in the high 90th percentile, and in the near future the Part II Permit will be amended for the plant upgrade/expansion where at that time a true organic loading will be requested. The loadings will continue to be evaluated.

III. INDUSTRIAL WASTES

The West Goshen Township Industrial Waste Ordinance was submitted to the Department of Environmental Resources in the 1983 Chapter 94 Report. The Township is in the process of reviewing its Ordinance to ascertain if the regulations need updating. In 1993, the Township conducted the first phase of an update to their local limits.

The Township has issued permits to its industrial/commercial dischargers and monitors them on a regular basis. Random visits are made to the industrial facilities throughout the year to verify compliance with the rules and regulations.

The treatment plant experienced no known pass-through or interference of the treatment process from industrial discharges in 1995.

IV. SEWER EXTENSIONS

Development in West Goshen and surrounding townships has continued at a more moderate pace as in the previous year. The following is a list of sewer extensions which were constructed, permitted, and/or proposed in West Goshen Township and contributing townships in 1995 (refer to maps located in the Appendix of this report):

A. West Goshen Township

<u>Development</u>	<u>EDUs</u>	<u>Flow (gpd)</u>	<u>% Comp.</u>
Cheshire Hunt	82	28,700	98%
Hamilton Woods	55	19,250	38%
Goshen Commons (apartments)	116	29,000	86%
Wildflower Subdivision	7	2,450	86%
Kelly Property (Village of Shannon)	349	78,525	37%
Brandywine Knoll (formerly Aldergate)	88	30,800	86%
American Legion (Wilnor Estates)	15	5,250	47%
Drury Group	10	4,125	25%
Fox Knoll	25	8,750	40%
DiRocco Brothers	9	3,150	55%
Green Tree	13	3,400	100%
Green Hill Area (existing homes)	103	36,050	72%
Waltz Tract	13	3,575	62%
Lasko	18	4,950	78%
Sunset Hallow Road	10	2,750	0%
Merion Circle	7	1,925	43%
Crosspointe	33	9,075	0%
Applegate	121	33,275	0%
Boston Chicken	2	700	0%
Rock Church	2	700	0%
Burke Road	7	2,450	0%
Brandywine Industrial Park	13	4,556	23%
VIV Carlas, preliminary	81	28,350	0%

B. East Goshen Township

See Appendix 6A.

C. Westtown Township

See Appendix 6B.

D. West Whiteland Township

See Appendix 6C.

V. OPERATION AND MAINTENANCE PROGRAM

The operation and maintenance program performed by the West Goshen Township treatment plant personnel has been increasingly effective in maintaining continuity in the operation of the facility. Each day all of the pumping stations in the system are inspected. Equipment checks are performed on a routine basis and repairs are generally performed in-house when possible. A rather extensive supply of spare parts is stocked at the treatment plant. A maintenance shop with selected tools and equipment has been set up at the treatment plant to enable personnel to perform most repairs.

All treatment units are inspected daily to ensure that they are in good working order. Samples are taken at various points in the treatment process to determine the effectiveness of the units in providing treatment.

VI. SEWERAGE SYSTEM

West Goshen Township owns a sanitary sewer video inspection system as part of their Infiltration/Inflow equipment. In 1995, the Township televised 21,026 feet of collection lines, flushed 58,436 feet of collection lines and contracted sealing of 52 joints and 2 manholes.

West Goshen Township adopted an Ordinance in 1991 which requires owners of all new construction projects and rehabilitated existing structures to install low flow plumbing fixtures. It is anticipated that this ordinance will reduce the average flow per household and thus not utilize as much treatment capacity as homes and offices built prior to this requirement.

VII. PUMPING STATIONS

The following is a discussion of the sewage pumping stations located in West Goshen Township:

<u>Pumping Station</u>	<u>Capacity (gpd)</u>	<u>Maximum Flow (gpd)</u>	<u>Projected Two-Year Maximum Flow (gpd)</u>
#1 Montgomery Ave.	216,000	217,000	180,000
#2 Trinity Drive	259,200	104,000	94,000
#3 Spruce Ave.	1,008,000	376,900	438,000
#4	Abandoned	-	-
#5	Abandoned	-	-
#6 Ellis Lane	1,450,000	652,800	634,000
#7	Abandoned	-	-
#8	Abandoned	-	-
#9	Abandoned	-	-
#10 Woodcrest	144,000	14,500	16,000
#11 Taylor Run	1,440,000	1,030,000	897,600
#12 Washington St.	5,472,000	1,530,000	1,440,000
#13 Westtown Way	3,888,000	2,369,000	2,204,000
#14	Abandoned	-	-
#15	Abandoned	-	-
#16 Fernhill (Northeast)	1,100,000	299,000	363,000
#17 Hamilton Woods	345,600	24,420	40,000

Capacities of the pumping stations are determined by one pump running over a 24 hour period. The actual capacity is more than this if you consider other pumps operating, wet well capacity and force main capacity. The two-year maximum flows are derived from the average daily flows, proposed extensions and the ratio of the monthly peak flow to the average monthly flow.

VIII. SLUDGE DISPOSAL

The sludge generated by the facility is anaerobically digested and dewatered by a belt filter press. In 1995, approximately 1,855 wet tons of dewatered sludge was hauled to the Chester County Solid Waste Authority Landfill and 100,000 gallons of liquid digested sludge was land applied through a program with BFI.

APPENDICES

1. HYDRAULIC LOADING DATA
2. ORGANIC LOADING DATA
3. HYDRAULIC AND ORGANIC LOADING PROJECTIONS
4. HYDRAULIC LOADING GRAPH
5. ORGANIC LOADING GRAPH
6. CONTRIBUTING MUNICIPALITIES
 - A. EAST GOSHEN TOWNSHIP
 - B. WESTTOWN TOWNSHIP
 - C. WEST WHITELAND TOWNSHIP
7. SEWER EXTENSIONS, WEST GOSHEN TOWNSHIP

APPENDIX 1
HYDRAULIC LOADING DATA

WEST GOSHEN WASTEWATER TREATMENT PLANT
HYDRAULIC LOADING DATA

MONTH =====	Monthly Average Wastewater Flows (MGD)				
	1991 =====	1992 =====	1993 =====	1994 =====	1995 =====
January	3.825	2.939	3.811	3.791	3.502
February	3.514	2.897	3.651	4.197	3.248
March	3.858 *	3.353	4.995 *	5.672 *	3.813
April	3.922 *	3.258	4.801 *	4.949 *	3.485
May	3.777 *	3.428	3.999 *	4.507 *	3.508
June	3.658	3.537	3.696	3.987	3.407
July	3.556	3.377	3.389	3.810	3.227
August	3.314	3.393	3.267	3.781	3.111
September	3.134	3.405	3.271	3.433	3.065
October	3.015	3.215 *	3.291	3.232	3.458 *
November	2.916	3.463 *	3.358	3.168	3.484 *
December	3.135	4.085 *	3.769	3.297	4.019 *
Annual Average	3.469	3.362	3.775	3.985	3.444
Max. 3-Month Avg. Daily Flow	3.852	3.587	4.398	5.043	3.654
Ratio (Max. 3-Month to Annual Avg.)	1.111	1.067	1.218	1.265	1.061
Average of Ratios =					1.146
5-year annual average hydraulic loading =					3.607

*Indicates highest three consecutive months

APPENDIX 2
ORGANIC LOADING DATA

WEST GOSHEN WASTEWATER TREATMENT PLANT
ORGANIC LOADING DATA

MONTH	Monthly Average Influent BOD5 Loadings (lbs/day)				
	1991	1992	1993	1994	1995
January	2,596	2,812	8,899	11,440	8,061
February	2,509	1,920	7,308	9,463	8,006
March	3,084	2,540	9,373	11,617	9,238
April	2,043	2,177	7,888	8,989	9,561
May	2,292	2,477	7,504	11,318	7,191
June	2,109	2,779	6,627	8,338	6,182
July	2,019	2,314	6,388	6,702	8,663
August	1,615	2,327	8,964	7,807	5,817
September	1,743	2,340	7,229	7,987	5,390
October	2,188	3,006	6,999	6,081	5,793
November	1,953	3,470	8,878	7,845	4,953
December	2,204	3,810	9,870	6,820	6,949
Annual Average	2,196 *	2,664 *	7,994	8,701	7,150

5-year annual average organic loading = 7,348 * lbs/day

* Organic Loadings for 1991/92 were calculated based on Influent cBODS not used in the 5-year projection.

APPENDIX 3
HYDRAULIC AND ORGANIC LOADING PROJECTIONS

WEST GOSHEN WASTEWATER TREATMENT PLANT
HYDRAULIC AND ORGANIC LOADING PROJECTIONS

PROJECTED HYDRAULIC LOADINGS (MGD) - HYDRAULIC CAPACITY 4.5 MGD

Year	Previous Flow	+	Increased Flow	=	Projected Flow
1995	----		-----		3.607 *
1996	3.607		.15926		3.766
1997	3.766		.11014		3.876
1998	3.876		.05977		3.936
1999	3.936		.03572		3.972
2000	3.972		.06704		4.039

PROJECTED MAXIMUM 3-MONTH ANNUAL FLOWS

Year	Flow	x	Ratio	=	Projected Flow
1996	3.766		1.144		4.310
1997	3.876		1.144		4.436
1998	3.936		1.144		4.504
1999	3.972		1.144		4.545
2000	4.039		1.144		4.622

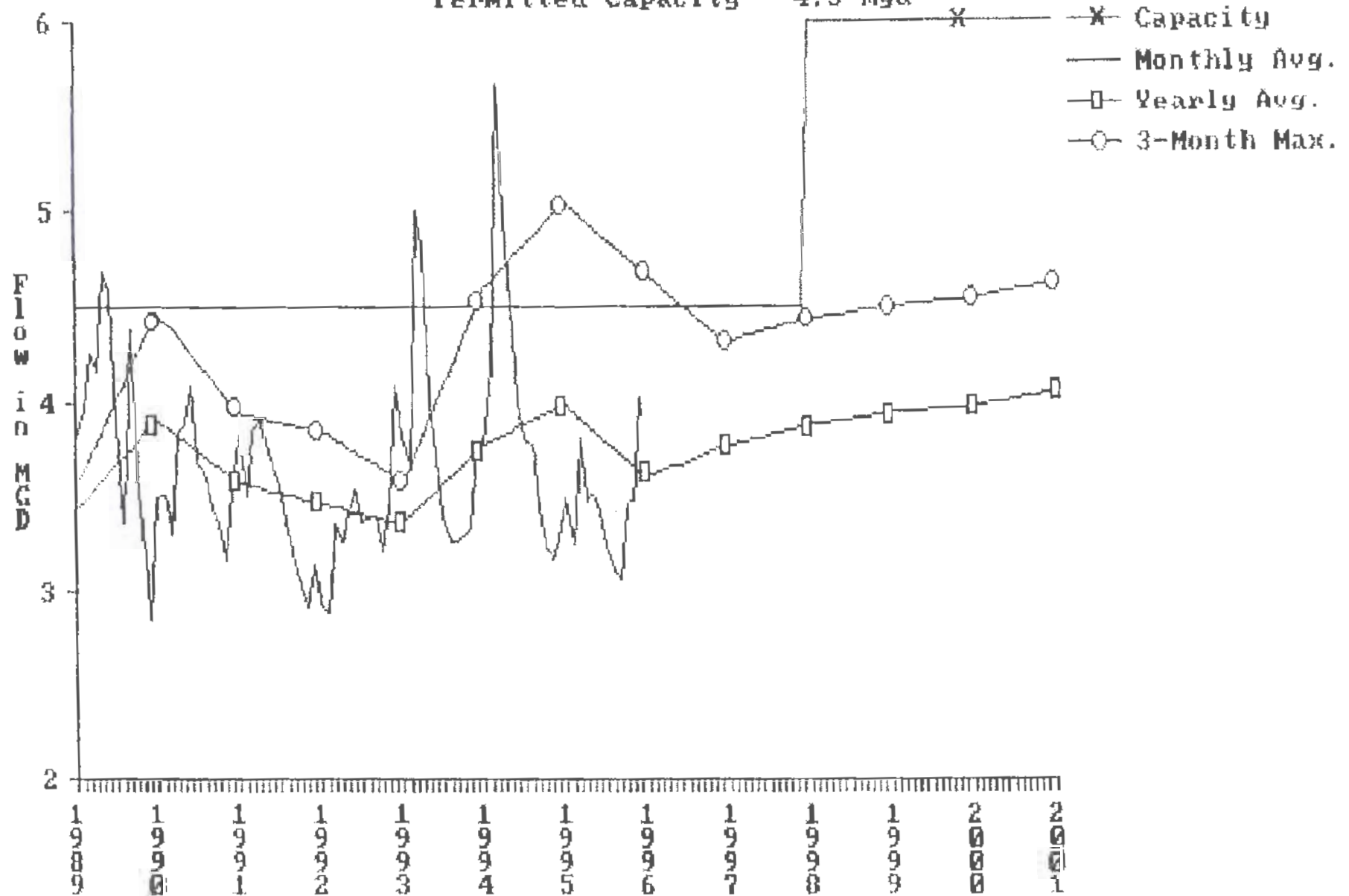
PROJECTED ORGANIC LOADINGS - ORGANIC CAPACITY 7,506 LBS./DAY

Year	Previous Load	+	(1) Increased Load	=	Projected Load
1995	-----		-----		7946 *
1996	7946		329.40		8278
1997	8278		227.81		8505
1998	8505		123.62		8629
1999	8629		73.88		8703
2000	8703		138.66		8842

(1) (Increased Flow, MGD) (248 mg/l BOD) (8.34) = Increased Load, lbs/day.
* Average 5 years flow/load

APPENDIX 4
HYDRAULIC LOADING GRAPH

HYDRAULIC LOADING GRAPH Permitted Capacity - 4.5 mgd

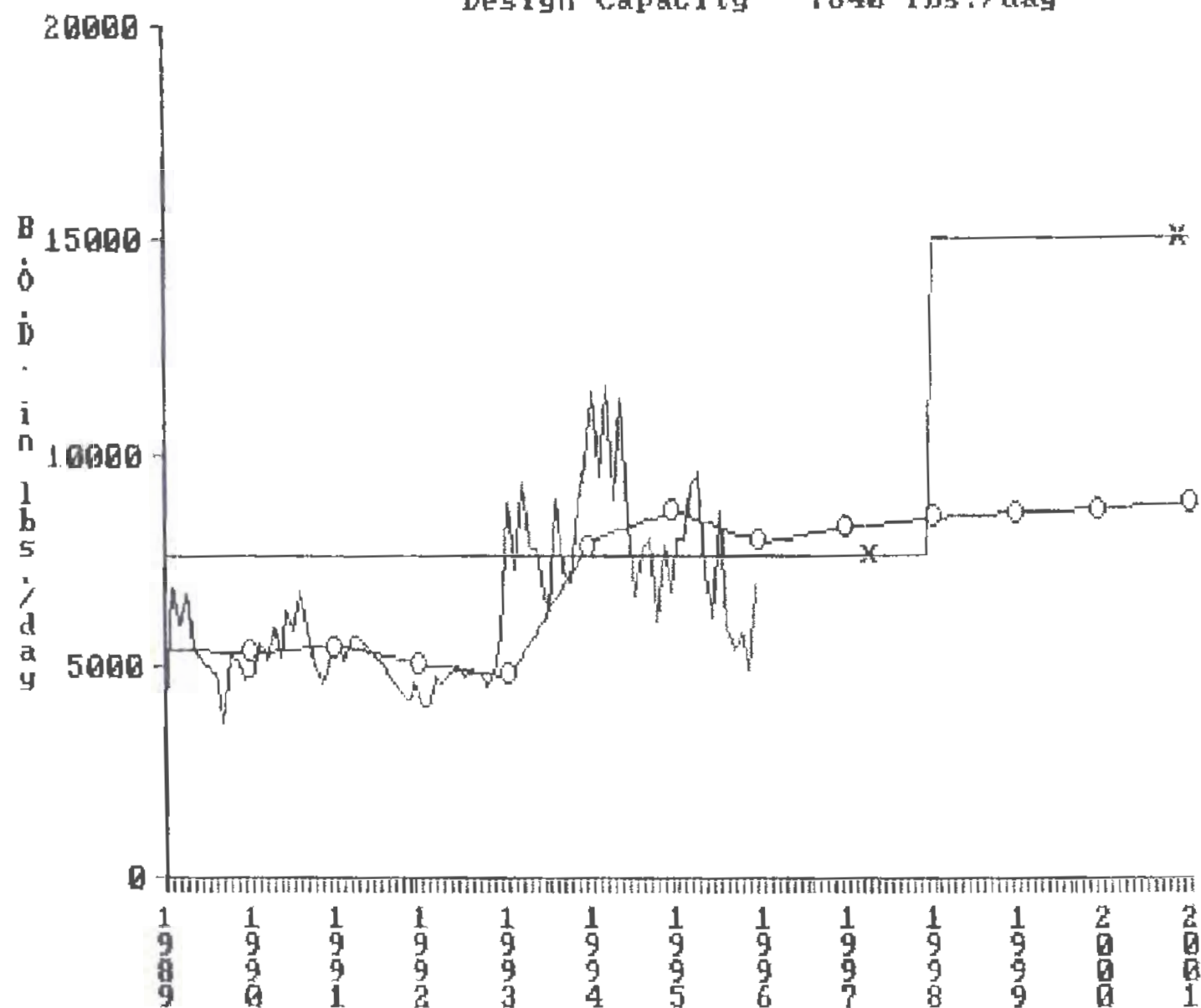


WEST GOSHEN CHAPTER 94 REPORT - 1995

APPENDIX 5
ORGANIC LOADING GRAPH

ORGANIC LOADING GRAPH Design Capacity - 7640 lbs./day

—X— Capacity
— Monthly Avg.
—○— Yearly Avg.



WEST GOSHEN CHAPTER 94 REPORT - 1995

APPENDIX 6
CONTRIBUTING MUNICIPALITIES
A. EAST GOSHEN TOWNSHIP

EAST GOSHEN MUNICIPAL AUTHORITY

1580 PAOLI PIKE
WEST CHESTER, PA 19380
692-7171

February 1, 1996

1995 ANNUAL WASTELOAD MANAGEMENT REPORT - CHESTER CREEK

I. FLOW DATA

A. PAST FLOWS

1991 - 754,769 GPD actual
1992 - 806,165 GPD
1993 - 815,191 GPD
1994 - 860,632 GPD
1995 - 867,407 GPD

B. FUTURE FLOWS (based on 350 GPD/EDU) **

1996 - 877,127 GPD
1997 - 882,547 GPD
1998 - 904,217 GPD
1999 - 908,837 GPD
2000 - 951,857 GPD

** SEE ATTACHED LIST

C. PUMPING STATIONS

WE CURRENTLY DO NOT HAVE ANY PUMP STATIONS THAT DISCHARGE SEWAGE INTO THE WEST GOSHEN SYSTEM. WE DO, HOWEVER, HAVE THREE (3) SMALL PUMP STATIONS THAT PUMP SEWAGE WITHIN THE EAST GOSHEN MUNICIPAL SYSTEM:

MARYDELL PUMP STATION	+/- 10,000 GPD
HERSHEY MILL ESTATES PUMP STATION	+/- 50,000 GPD
ASHBRIDGE/FIRETHORNE	+/- 38,500 GPD

II SEWER EXTENSIONS

A.

1. ROSENBERRY BRAMBLE LANE 8 LOTS - 1 COMPLETED IN 1995 (3 REMAINING)

2. GOODWIN ACRES

3. BRANDOLINI - MORSTEIN ROAD - 27 SINGLE FAMILY HOMES (NEEDS CONDITIONAL USE APPROVAL)

B. SEWER EXTENSIONS CONSTRUCTED DURING THE PAST YEAR = 0

C. PROPOSED PROJECTS IN THE PRELIMINARY PLANNING STAGES: = 1

2,310 LINEAR FEET OF HERSHEY MILL ESTATES COLLECTION LINE IS SCHEDULED TO BE RENOVATED. BID WAS AWARDED ON 1/9/95 WITH SUBSTANTIAL COMPLETION TO TAKE PLACE 120 DAYS FROM AWARD.

D. NUMBER OF CONNECTIONS ADDED DURING THE PAST YEAR (1995) : 20
17 SINGLE FAMILY DWELLINGS; 3 APARTMENTS; 1 COMMERCIAL

E. TOTAL NUMBER OF CONNECTIONS IN THE CHESTER CREEK SYSTEM : 3429
3429 UNITS - 1609 CONNECTIONS

III INDUSTRIAL WASTE USERS

ALL USERS MUST REDUCE WASTE TO DOMESTIC STRENGTH. PLEASE NOTE THAT THE FIGURES IN THE ATTACHED SHEETS ARE BASED ON ACTUAL 1992 METER READINGS WHICH WERE TAKEN QUARTERLY FOR BILLING PURPOSES. ALL COMMERCIAL AND INDUSTRIAL ACCOUNTS ARE BILLED ON A METERED BASIS.

A. SEE ATTACHED LISTING

B. THE TOWNSHIP DOES NOT HAVE ANY ORDINANCE COVERING INDUSTRIAL WASTE DISCHARGE OTHER THAN ORDINANCE #95 (ENCLOSED) WHICH SPECIFIES THAT ALL WASTE MUST BE OF DOMESTIC STRENGTH.

IV INFLOW/INFILTRATION

1. A narrative is attached. All reports are on video tape and kept on file in the township office.

2. Approximately 2,000 feet of sewer line were televised in 1995. If any problems are located, they are immediately repaired. The system is in very good condition. Infiltration and inflow studies are ongoing. A program of televising and cleaning the private apartment complex lines was started in 1992

3 See the report attached for item #1.

IV INFLOW/INFILTRATION

NARRATIVE IN RESPONSE TO QUESTION #1

A total of 2,000 feet of sewer line was televised and cleaned during 1995. The cost was approximately \$1,000. The Township/Authority purchased a portable televising camera and does most of its own televising work thereby reducing the costs.

Manhole inserts have been installed in all of the low areas and replaced when necessary. Broken or cracked vent caps are routinely replaced by Township personnel.

Monitoring of sump pump connections continues to be done. (homeowners are given one month to disconnect from the public sewer system before fines are imposed.)

** FUTURE FLOWS - BASED ON ACTUAL AVG METER READINGS FOR 1995

BEGINING FLOW = 867,407 GPD

1996

USER	TYPE	GPD	ZONING DISTRICT
GOODWIN ACRES	SINGLE FAMILY	1,750	R-2
ROSENBERRY	SINGLE FAMILY	1,400	R-2
BRANDOLINI	SINGLE FAMILY	1,400	R-3
CORPORATE PK WEST (TOTAL # LOTS = 12 - 27.285 ACRES @ 305 GPD/ACRE - 2 BUILDINGS ARE BUILT	4 ACRE LOT	1,220	I-1
SS PETER/PAUL CHURCH	CHURCH	1,150	R-2
MISCELLANEOUS	SINGLE FAMILY	2,800	R-2
SUB TOTAL		9,720	

TOTAL EST GPD FOR 1996

877,127

1997

USER	TYPE	GPD	ZONING DISTRICT
BRANDOLINI	SINGLE FAMILY	1,400	R-3
CORP PARK WEST	INDUSTRIAL - 4 ACRE LOT	1,220	I-1
MISCELLANEOUS	SINGLE FAMILY	2,800	R-2
SUBTOTAL		5,420	

TOTAL EST GPD FOR 1997

882,547

1998

USER	TYPE	GPD	ZONING DISTRICT
BRANDOLINI	SINGLE FAMILY	6,650	R-3
CORP PARK WEST	INDUSTRIAL - 4 ACRE LOT	1,220	I-1
BRANDYWINE PLAZA	OFFICE BLDGS (4)	10,800	I-1
MISCELLANEOUS	SINGLE FAMILY	3,000	R-2
SUBTOTAL		21,670	

TOTAL EST GPD FOR 1998

904,217

1999

USER	TYPE	GPD	ZONING DISTRICT
CORP PARK WEST	4 ACRE LOT	1,220	I-1
MISCELLANEOUS	SINGLE FAMILY	3,000	R-2
SUBTOTAL		4,620	

TOTAL EST GPD FOR 1999

908,837

2000

USER	TYPE	GPD	ZONING DISTRICT
CORP PARK WEST	4 ACRE LOT	1,220	I-1
PRICE PROPERTY	129.6 ACRES	35,475	R-2
MISCELLANEOUS	SINGLE FAMILY	6,325	R-2
SUBTOTAL		43,020	

TOTAL FOR 2000

951,857

1893 PROPERTY MANAGEMENT HOUGH/LOEW Service Address
 750 SPRINGDALE DR 1305 GOSHEN PKWY
 EXTON PA 19341

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	1680.4	09/25/1995	1557.1	123.3 (1995/04)
01	09/25/1995	1557.1	06/29/1995	1368.1	189 (1995/03)
01	06/29/1995	1368.1	03/28/1995	1172.3	195.8 (1995/02)
01	03/28/1995	1172.3	12/22/1994	999.8	172.5 (1995/01)
Grand Total:					680.6

1895 LIBERTY PROP LIMITED PART Service Address
 65 VALLEY STREAM PKWY AIRPORT RD
 MALVERN PA 19355

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	1613.0	09/25/1995	1548.9	64.1 (1995/04)
01	09/25/1995	1548.9	06/29/1995	1463.2	85.7 (1995/03)
01	06/29/1995	1463.2	02/28/1995	1357	106.2 (1995/02)
01	03/28/1995	1357.0	12/22/1994	1279.8	77.2 (1995/01)
Grand Total:					333.2

1896 COSMETICS ALOETTE Service Address
 1301 WRIGHT'S LA 1301 WRIGHTS LA
 WEST CHESTER PA 19380

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	923.38	09/25/1995	889.04	34.34 (1995/04)
01	09/25/1995	889.04	06/29/1995	861.81	27.23 (1995/03)
01	06/29/1995	861.81	03/28/1995	777.88	83.93 (1995/02)
01	03/28/1995	777.88	12/22/1994	696.12	81.76 (1995/01)
Grand Total:					227.26

1899 PARTNERSHIP S WINIG ASSOC. LIM Service Address
 P.O. 1239 AIRPORT RD & WILSON
 WEST CHESTER PA 19380

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	131.6	09/25/1995	80.5	51.1 (1995/04)
01	09/25/1995	80.5	06/29/1995	31.	49.5 (1995/03)
01	06/29/1995	310	03/28/1995	1553.9	53.8 (1995/02)
01	03/28/1995	1553.9	12/22/1994	1496.2	57.7 (1995/01)
Grand Total:					212.1

1901 RICHARD Z & KATHRYN O THOMSON Service Address
 1301 PAOLI PK 1301 PAOLI PK
 WEST CHESTER PA 19380

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	113.0	09/25/1995	102.52	10.48 (1995/04)
01	09/25/1995	102.52	06/29/1995	91	11.52 (1995/03)
01	06/29/1995	91.0	03/28/1995	81.25	9.75 (1995/02)
01	03/28/1995	81.25	12/22/1994	73.7	7.55 (1995/01)
Grand Total:					39.3

202

MARS INC M & M
1301 WILSON DR
WEST CHESTER PA 19380

Service Address
1301 WILSON DR

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995		09/25/1995	0	434.030 (1995/04)
01	09/25/1995		06/29/1995	0	333.440 (1995/03)
01	06/29/1995		03/28/1995	0	455.130 (1995/02)
01	03/28/1995		12/28/1994	0	507.270 (1995/01)
Grand Total:					1729.87

1904

PHILIP P & LINDA H HICKS
671 AIRPORT RD
WEST CHESTER PA 19380

Service Address
1305 PAOLI PK

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	5527.66	09/25/1995	5469.6	58.06 (1995/04)
01	09/25/1995	5469.6	06/29/1995	5469.6	0 (1995/03)
01	06/29/1995	5469.6	03/28/1995	5449.49	20.11 (1995/02)
01	03/28/1995	5449.49	12/22/1994	5416.74	32.75 (1995/01)
Grand Total:					110.92

2158

TRILOGY DEVELOPMENT
1541 E STRASBURG RD
WEST CHESTER PA 19380

Service Address
1541 E STRASBURG RD

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	62	09/25/1995	58	4 (1995/04)
01	09/25/1995	58	06/29/1995	54	4 (1995/03)
01	06/29/1995	54	03/28/1995	50	4 (1995/02)
01	03/28/1995	50	12/22/1994	46	4 (1995/01)
Grand Total:					16

2297

CFM TECHNOLOGIES
1381 ENTERPRISE DR
WEST CHESTER PA 19380

Service Address
1336 ENTERPRISE DR

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	3568.11	09/25/1995	3489.03	79.08 (1995/04)
01	09/25/1995	3489.03	06/29/1995	3488.6	.43 (1995/03)
01	06/29/1995	3488.6	03/28/1995	3346.2	142.4 (1995/02)
01	03/28/1995	3346.2	12/22/1994	3251.8	94.4 (1995/01)
Grand Total:					316.31

2298

C.T.D.I
1334 ENTERPRISE DR
WEST CHESTER PA 19380

Service Address
1334 ENTERPRISE DR

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	943.3	09/25/1995	758.3	185 (1995/04)
01	09/25/1995	758.3	06/29/1995	690	68.3 (1995/03)
01	06/29/1995	690.00	03/28/1995	616.5	73.5 (1995/02)
01	03/28/1995	616.5	12/22/1994	547.2	69.3 (1995/01)
Grand Total:					396.1

299 H F & MARQUERITE B LENFEST Service Address
 1232 ENTERPRISE DR 1332 ENTERPRISE DR
 WEST CHESTER PA 19380

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	750.3	09/25/1995	650.8	99.5 (1995/04)
01	09/25/1995	650.8	06/29/1995	530.5	120.3 (1995/03)
01	06/29/1995	530.5	03/28/1995	418.8	111.7 (1995/02)
01	03/28/1995	418.8	12/22/1994	308.5	110.3 (1995/01)
Grand Total:					441.8

300 TOOLS CORP SNAP-ON Service Address
 2801 80TH ST 1330 ENTERPRISE DR
 KENOSHA WI 53141

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	743.75	09/25/1995	700.1	43.65 (1995/04)
01	09/25/1995	700.1	06/29/1995	662.8	37.3 (1995/03)
01	06/29/1995	662.8	03/28/1995	616.3	46.5 (1995/02)
01	03/28/1995	616.3	12/22/1994	566.2	50.1 (1995/01)
Grand Total:					177.55

2301 C/O MR DON BRENNAN COMPETITIVES Service Address
 1380 ENTERPRISE DR 1385 ENTERPRISE DR
 WEST CHESTER PA 19380

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	3918.52	09/25/1995	3816.32	102.2 (1995/04)
01	09/25/1995	3816.32	06/29/1995	3712.29	104.03 (1995/03)
01	06/29/1995	3712.29	03/28/1995	3594.44	117.85 (1995/02)
01	03/28/1995	3594.44	12/22/1994	3463.02	131.42 (1995/01)
Grand Total:					455.5

2302 CFM TECHNOLOGIES INC Service Address
 1381 ENTERPRISE DR 1381 ENTERPRISE DR
 WEST CHESTER PA 19380

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	587.62	09/25/1995	463.03	124.59 (1995/04)
01	09/25/1995	463.03	06/29/1995	370.17	92.86 (1995/03)
01	06/29/1995	370.17	03/28/1995	289.71	80.46 (1995/02)
01	03/28/1995	289.71	12/22/1994	200.95	88.76 (1995/01)
Grand Total:					386.67

2304 TEST DESIGN INC COMMUNICATIONS Service Address
 1373 ENTERPRISE DR 1373 ENTERPRISE DR
 WEST CHESTER PA 19380

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	2823.6	09/25/1995	2516.4	307.2 (1995/04)
01	09/25/1995	2516.4	06/29/1995	2210	306.4 (1995/03)
01	06/29/1995	2210.0	03/28/1995	1968.7	241.3 (1995/02)
01	03/28/1995	1968.7	12/22/1994	1722	246.7 (1995/01)
Grand Total:					1101.6

2308

ACCTS PAYABLE Q.V.C. NETWORK IService Address
 1365 ENTERPRISE DR 1365 ENTERPRISE DR
 WEST CHESTER PA 19380

Number	Curr Date	Reading	Prev Date	Reading	Usage	Billed
01	12/28/1995	16317.6	09/25/1995	16948.1	1369.5	(1995/04)
01	09/25/1995	16948.1	06/29/1995	15610.7	1337.4	(1995/03)
01	06/29/1995	15610.7	03/28/1995	14270.1	1340.6	(1995/02)
01	03/28/1995	14270.1	12/22/1994	12905.1	1365	(1995/01)
Grand Total:					5412.5	

2311

FORMALWEAR NATIONWIDE Service Address
 1340 ENTERPRISE DDR 1340 ENTERPRISE DR
 WEST CHESTER PA 19380

Number	Curr Date	Reading	Prev Date	Reading	Usage	Billed
01	12/28/1995		09/25/1995	0	586.230	(1995/04)
01	09/25/1995		06/29/1995	0	384.560	(1995/03)
01	06/29/1995		03/28/1995	0	660.070	(1995/02)
01	03/28/1995		12/28/1994	0	599.380	(1995/01)
Grand Total:					2230.24	

2313

DESIGN INC. COMMUNICATIONS TESService Address
 1339 ENTERPRISE DR 1339 ENTERPRISE DR
 WEST CHESTER PA 19380

Number	Curr Date	Reading	Prev Date	Reading	Usage	Billed
01	12/28/1995	1964.11	09/25/1995	1931.82	32.29	(1995/04)
01	09/25/1995	1931.82	06/29/1995	1904.6	27.22	(1995/03)
01	06/29/1995	1904.6	03/28/1995	1874.0	30.6	(1995/02)
01	03/28/1995	1973.04	12/22/1994	1844.95	128.09	(1995/01)
Grand Total:					218.2	

2314

BOUTIQUE ELECTRONICS Service Address
 1345 ENTERPRISE DR 1345 ENTERPRISE DR
 WEST CHESTER PA 19380

Number	Curr Date	Reading	Prev Date	Reading	Usage	Billed
01	12/28/1995	853.7	09/25/1995	747.7	106	(1995/04)
01	09/25/1995	747.7	06/29/1995	569	178.7	(1995/03)
01	06/29/1995	569.	03/28/1995	444.77	124.23	(1995/02)
01	03/28/1995	444.77	12/22/1994	326.6	118.17	(1995/01)
Grand Total:					527.1	

2318

C.T.D.I. Service Address
 1372 ENTERPRISE DR 1372 ENTERPRISE DR
 WEST CHESTER PA 19380

Number	Curr Date	Reading	Prev Date	Reading	Usage	Billed
01	12/28/1995	1365.3	09/25/1995	1253.7	111.6	(1995/04)
01	09/25/1995	1253.70	06/29/1995	1216.5	37.2	(1995/03)
01	06/29/1995	1216.5	03/28/1995	1192.8	23.7	(1995/02)
01	03/28/1995	1192.8	12/22/1994	1173.1	19.7	(1995/01)
Grand Total:					192.2	

318 HALFPENNY MNGT CO Service Address
 90 CRICKET AVE 1380 ENTERPRISE DR
 ARDMORE PA 19003

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	613.	09/25/1995	513	100 (1995/04)
01	09/25/1995	513.0	06/29/1995	443	70 (1995/03)
01	06/29/1995	443.0	03/28/1995	363.3	79.7 (1995/02)
01	03/28/1995	363.3	12/22/1994	295.3	68 (1995/01)
Grand Total:					317.7

345 PARDO'S SUNOCO Service Address
 1425 PAOLI PK 1425 PAOLI PK
 WEST CHESTER PA 19380

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	134.	09/25/1995	130.362	3.638 (1995/04)
01	09/25/1995	130.362	06/29/1995	127.122	3.24 (1995/03)
01	06/29/1995	127.122	03/28/1995	123.757	3.365 (1995/02)
01	03/28/1995	123.757	12/22/1994	120.536	3.221 (1995/01)
Grand Total:					13.464

438 GOSHEN REALTY PARTNERS Service Address
 1031 OLD CASSATT RD 1450 BOOT RD UNIT 200-A
 BERWYN PA 19312

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995		09/29/1995	0	4.738 (1995/04)
01	09/29/1995		06/29/1995	0	3.614 (1995/03)
01	06/29/1995		03/28/1995	0	4.139 (1995/02)
01	03/28/1995		12/28/1994	0	4.886 (1995/01)
Grand Total:					17.377

1439 & SLACK CORDES Service Address
 1450 BOOT RD 1450 BOOT RD UNIT 200-A
 WEST CHESTER PA 19380

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995		09/29/1995	0	3.790 (1995/04)
01	09/29/1995		06/29/1995	0	2.892 (1995/03)
01	06/29/1995		03/28/1995	0	3.311 (1995/02)
01	03/28/1995		12/28/1994	0	3.908 (1995/01)
Grand Total:					13.901

1440 HARRY & AGATHA TYLER Service Address
 1450 BOOT RD 200-C 1450 BOOT RD
 WEST CHESTER PA 19380

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995		09/29/1995	0	3.790 (1995/04)
01	09/29/1995		06/29/1995	0	2.892 (1995/03)
01	06/29/1995		03/28/1995	0	3.311 (1995/02)
01	03/28/1995		12/28/1994	0	3.908 (1995/01)
Grand Total:					13.901

41 HARRY R & AGATHA C TYLER Service Address
1450 BOOT RD 200-D 1450 BOOT RD
WEST CHESTER PA 19380

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995		09/29/1995	0	3.790 (1995/04)
01	09/29/1995		06/29/1995	0	2.892 (1995/03)
01	06/29/1995		03/28/1995	0	3.311 (1995/02)
01	03/28/1995		12/28/1994	0	3.908 (1995/01)
Grand Total:					13.901

2442 ALLEN & SUSAN SELTZER Service Address
1450 BOOT RD BLDG 200-E 1450 BOOT RD - BLDG 200-E
WEST CHESTER PA 19380

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995		09/29/1995	0	3.790 (1995/04)
01	09/29/1995		06/29/1995	0	2.892 (1995/03)
01	06/29/1995		03/28/1995	0	3.311 (1995/02)
01	03/28/1995		12/24/1994	0	3.908 (1995/01)
Grand Total:					13.901

2443 LANCE & MARY ANNE LIPTON Service Address
1450 BOOT RD - BLDG 200-F 200-F 1450 BOOT RD
WEST CHESTER PA 19380

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995		09/29/1995	0	4.738 (1995/04)
01	09/29/1995		06/29/1995	0	3.614 (1995/03)
01	06/29/1995		03/28/1995	4.886	4.139 (1995/02)
01	03/28/1995	4.886	12/28/1994	0	4.886 (1995/01)
Grand Total:					17.377

2444 ENTERPRISES MAG Service Address
1450 BOOT RD 100-A & B 1450 BOOT RD 100-A & B
WEST CHESTER PA 19380

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995		09/29/1995	0	22.110 (1995/04)
01	09/29/1995		06/29/1995	0	16.867 (1995/03)
01	06/29/1995		03/28/1995	0	19.313 (1995/02)
01	03/28/1995		12/28/1994	0	22.799 (1995/01)
Grand Total:					81.089

2445 WINSLOW MURDOCH Service Address
1450 BOOT RD 300-A 1450 BOOT RD
WEST CHESTER PA 19380

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995		09/29/1995	0	11.055 (1995/04)
01	09/29/1995		06/29/1995	0	8.434 (1995/03)
01	06/29/1995		03/28/1995	0	9.657 (1995/02)
01	03/28/1995		12/28/1994	0	11.400 (1995/01)
Grand Total:					40.546

446 JOSE & WEIDIS Service Address
1450 BOOT RD - BLDG 300-B 1450 BOOT RD 300-B
WEST CHESTER PA 19380

Number	Curr Date	Reading	Prev Date	Reading	Usage	Billed
01	12/28/1995		09/29/1995	0	11.055	(1995/04)
01	09/29/1995		06/29/1995	0	8.434	(1995/03)
01	06/29/1995		03/28/1995	0	9.657	(1995/02)
01	03/28/1995		12/28/1994	0	11.400	(1995/01)
Grand Total:					40.546	

447 & ASSOCIATES ZEELANDEANS Service Address
23 BROOK LA 600-A 1450 BOOT RD
CHADDS FORD PA 19317

Number	Curr Date	Reading	Prev Date	Reading	Usage	Billed
01	12/28/1995		09/29/1995	0	11.055	(1995/04)
01	09/29/1995		06/29/1995	0	8.434	(1995/03)
01	06/29/1995		03/28/1995	0	9.657	(1995/02)
01	03/28/1995		12/28/1994	0	11.400	(1995/01)
Grand Total:					40.546	

449 & ASSOCIATES ZEELANDEANS Service Address
23 BROOK LA 600-B 1450 BOOT RD
CHADDS FORD PA 19317

Number	Curr Date	Reading	Prev Date	Reading	Usage	Billed
01	12/28/1995		09/29/1995	0	11.055	(1995/04)
01	09/29/1995		06/29/1995	0	8.434	(1995/03)
01	06/29/1995		03/28/1995	0	9.657	(1995/02)
01	03/28/1995		12/28/1994	0	11.400	(1995/01)
Grand Total:					40.546	

450 & ASSOCIATES ZEELANDEANS Service Address
23 BROOK LA 700-A 1450 BOOT RD
CHADDS FORD PA 19317

Number	Curr Date	Reading	Prev Date	Reading	Usage	Billed
01	12/28/1995		09/29/1995	0	11.055	(1995/04)
01	09/29/1995		06/29/1995	0	8.434	(1995/03)
01	06/29/1995		03/28/1995	0	9.657	(1995/02)
01	03/28/1995		12/28/1994	0	11.400	(1995/01)
Grand Total:					40.546	

451 RICHARD & LINNEA R CLOMPUS Service Address
1450 BOOT RD 1450 BOOT RD 700-B
WEST CHESTER PA 19380

Number	Curr Date	Reading	Prev Date	Reading	Usage	Billed
01	12/28/1995		09/29/1995	0	11.055	(1995/04)
01	09/29/1995		06/29/1995	0	8.434	(1995/03)
01	06/29/1995		03/28/1995	0	9.657	(1995/02)
01	03/28/1995		12/28/1994	0	11.400	(1995/01)
Grand Total:					40.546	

52

ATTN GARY GOLDEN FRANKFORD BANS Service Address
601 DRESHER RD 400-A 1450 BOOT RD
HORSHAM PA 19044

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995		09/29/1995	0	11.055 (1995/04)
01	09/29/1995		06/29/1995	0	8.434 (1995/03)
01	06/29/1995		03/28/1995	0	9.657 (1995/02)
01	03/28/1995		12/28/1994	0	11.400 (1995/01)
Grand Total:					40.546

2453

ATTN GARY GOLDEN FRANKFORD BANS Service Address
601 DRESHER RD 1450 BOOT RD 400-B
HORSHAM PA 19044

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995		09/29/1995	0	11.055 (1995/04)
01	09/29/1995		06/29/1995	0	8.434 (1995/03)
01	06/29/1995		03/28/1995	0	9.657 (1995/02)
01	03/28/1995		12/28/1994	0	11.400 (1995/01)
Grand Total:					40.546

3678

DR. LEWIS SAVAR Service Address
1300 WEST CHESTER PK 1300 WEST CHESTER PK
WEST CHESTER PA 19382

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	124.38	09/25/1995	104.22	20.16 (1995/04)
01	09/25/1995	104.22	06/29/1995	86.73	17.49 (1995/03)
01	06/29/1995	86.73	03/28/1995	67.55	19.18 (1995/02)
01	03/28/1995	67.55	12/22/1994	48.4	19.15 (1995/01)
Grand Total:					75.98

3679

DAVID S & D ANDREW STINSON Service Address
P O BOX 59 1314 WEST CHESTER PK
WEST CHESTER PA 19381

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	81.8	09/25/1995	76.8	5 (1995/04)
01	09/25/1995	76.8	06/29/1995	70.5	6.3 (1995/03)
01	06/29/1995	70.5	03/28/1995	63.4	7.1 (1995/02)
01	03/28/1995	63.4	12/22/1994	63	.4 (1995/01)
Grand Total:					18.8

3686

PHOTO STORE R-J Service Address
1316 WEST CHESTER PIKE 1316 WEST CHESTER PK
WEST CHESTER PA 19382

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	107.52	09/25/1995	99.32	8.2 (1995/04)
01	09/25/1995	99.32	06/29/1995	91.03	8.29 (1995/03)
01	06/29/1995	91.03	03/28/1995	83.36	7.67 (1995/02)
01	03/28/1995	83.36	12/22/1994	77.69	5.67 (1995/01)
Grand Total:					29.83

3687 BETTER OUTLOOK Service Address
1316 WEST CHESTER PIKE BEAUTY SHOP
WEST CHESTER PA 19382

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	369.9	09/25/1995	354.8	15.1 (1995/04)
01	09/25/1995	354.8	06/29/1995	343.1	11.7 (1995/03)
01	06/29/1995	343.1	03/28/1995	333.1	10 (1995/02)
01	03/28/1995	333.1	12/22/1994	321.1	12 (1995/01)
Grand Total:					48.8

3688 CLARK'S CORNER DELI Service Address
1316 WEST CHESTER PIKE 1316 WEST CHESTER PK
WEST CHESTER PA 19382

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	25.90	09/25/1995	23.27	2.63 (1995/04)
01	09/25/1995	23.27	06/29/1995	21.37	1.9 (1995/03)
01	06/29/1995	21.37	03/28/1995	19.3	2.07 (1995/02)
01	03/28/1995	19.30	12/22/1994	16.91	2.39 (1995/01)
Grand Total:					8.99

3689 MAILING PLUS Service Address
1316 WEST CHESTER PIKE 1316 WEST CHESTER PK
WEST CHESTER PA 19382

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	32.9	09/25/1995	30.1	2.8 (1995/04)
01	09/25/1995	30.1	06/29/1995	27.9	2.2 (1995/03)
01	06/29/1995	27.9	03/28/1995	25.7	2.2 (1995/02)
01	03/28/1995	25.7	12/22/1994	22.7	3 (1995/01)
Grand Total:					10.2

3690 POOL/CLUBHOUSE GOSHEN VALLEY Service Address
1326 WEST CHESTER PIKE 1326 WEST CHESTER PK
WEST CHESTER PA 19382

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	428.0	09/25/1995	419.935	8.065 (1995/04)
01	09/25/1995	419.935	06/29/1995	410.167	9.768 (1995/03)
01	06/29/1995	410.167	03/28/1995	398.536	11.631 (1995/02)
01	03/28/1995	398.536	12/22/1994	392.729	5.807 (1995/01)
Grand Total:					35.271

3692 BOB WAGNER'S MILL CARPET Service Address
1328 WEST CHESTER PK 1328 WEST CHESTER PK
WEST CHESTER PA 19382

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	257.76	09/25/1995	237.97	19.79 (1995/04)
01	09/25/1995	237.97	06/29/1995	224.4	13.57 (1995/03)
01	06/29/1995	224.40	03/28/1995	201.17	23.23 (1995/02)
01	03/28/1995	201.17	12/22/1994	192.59	8.58 (1995/01)
Grand Total:					65.17

4750

FRANCIS AUTOMOTIVE
1317 1/2 WEST CHESTER PK
WEST CHESTER PA 19382

Service Address
1317 WEST CHESTER PK

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	525.07	09/26/1995	488.35	36.72 (1995/04)
01	09/26/1995		06/29/1995		0 (1995/04)
01	09/25/1995	488.35	03/28/1995	371.59	116.76 (1995/03)
01	03/28/1995	371.59	12/22/1994	298.9	72.69 (1995/01)
Grand Total:					226.17

4761

JOHN L JR FRANCIS
1315 WEST CHESTER PK
WEST CHESTER PA 19382

Service Address
1315 WEST CHESTER PK

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	68.426	09/25/1995	66.9	1.526 (1995/04)
01	09/25/1995	66.9	06/29/1995	65.83	1.07 (1995/03)
01	06/29/1995	65.83	03/28/1995	64.4	1.43 (1995/02)
01	03/28/1995	64.4	09/29/1994	62.197	2.203 (1995/01)
Grand Total:					6.229

4773

DONALD P & CARMELA SHARPLESS
1929 E STRASBURG RD
WEST CHESTER PA 19382

Service Address
1313 WEST CHESTER PK

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	665.37	09/25/1995	661.99	3.38 (1995/04)
01	09/25/1995	661.99	06/29/1995	658.64	3.35 (1995/03)
01	06/29/1995	658.64	03/28/1995	651.39	7.25 (1995/02)
01	03/28/1995	651.39	12/22/1994	637.17	14.22 (1995/01)
Grand Total:					28.2

4784

ROBERT/JOHN F DELPHIAS/DULIN
722 E UNION ST
WEST CHESTER PA 19380

Service Address
1313 WEST CHESTER PK

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995		09/25/1995		0 (1995/04)
01	09/25/1995	105.4	06/29/1995	103.2	2.2 (1995/03)
01	06/29/1995	103.20	03/28/1995	101	2.2 (1995/02)
01	03/28/1995	101.	06/30/1994	99.089	1.911 (1995/01)
Grand Total:					6.311

4785

H & L ENTERPRISES
208 CARTER DR
WEST CHESTER PA 19382

Service Address
1311 WEST CHESTER PK

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	96.	09/29/1995	86.94	9.06 (1995/04)
01	09/29/1995	86.94	06/29/1995	76.34	10.6 (1995/03)
01	06/29/1995	76.34	03/28/1995	67.31	9.03 (1995/02)
01	03/28/1995	67.310	12/22/1994	63.828	3.482 (1995/01)
Grand Total:					32.172

796 BETS REINHARD Service Address
 512 KING RD 1309 WEST CHESTER PK
 MALVERN PA 19355

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	10651.9	09/25/1995	10058.9	593 (1995/04)
01	09/25/1995	10058.9	06/29/1995	9585.2	473.7 (1995/03)
01	06/29/1995	9585.2	03/28/1995	8950.2	635 (1995/02)
01	03/28/1995	8950.2	12/22/1994	8216.5	733.7 (1995/01)
Grand Total:					2435.4

808 FINNAREN & HALEY Service Address
 901 WASHINGTON ST 1303 WEST CHESTER PK
 CONSHOHOCKEN PA 19428

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	390.05	09/25/1995	379.4	10.65 (1995/04)
01	09/25/1995	379.40	06/29/1995	368.37	11.03 (1995/03)
01	06/29/1995	368.37	03/28/1995	357.66	10.71 (1995/02)
01	03/28/1995	357.66	12/22/1994	347.83	9.83 (1995/01)
Grand Total:					42.22

819 WIGGINS/LYNCH/WINTHER Service Address
 1301 WEST CHESTER PK 1301 WEST CHESTER PK
 WEST CHESTER PA 19382

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	21.04	09/25/1995	10.86	10.18 (1995/04)
01	09/25/1995	10.86	06/29/1995	7.170	3.69 (1995/03)
01	06/29/1995	38.85	03/28/1995	30.6	8.25 (1995/02)
01	03/28/1995	30.6	12/22/1994	21.7	8.9 (1995/01)
Grand Total:					31.02

859 B B & C PARTNERSHIP Service Address
 1 RESERVOIR RD 1 RESERVOIR RD
 WEST CHESTER PA 19380

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	125.8	09/25/1995	121.1	4.7 (1995/04)
01	09/25/1995	121.10	06/29/1995	117.38	3.72 (1995/03)
01	06/29/1995	117.38	03/28/1995	112.2	5.18 (1995/02)
01	03/28/1995	112.2	12/22/1994	107.5	4.7 (1995/01)
Grand Total:					18.3

878 LEROY A & NANCY PHILLIPS Service Address
 1415 WEST CHESTER PK 1415 WEST CHESTER PK
 WEST CHESTER PA 19382

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	206.6	09/25/1995	196.8	9.8 (1995/04)
01	09/25/1995	196.8	06/29/1995	184.95	11.85 (1995/03)
01	06/29/1995	184.95	03/28/1995	170.4	14.55 (1995/02)
01	03/28/1995	170.4	12/22/1994	158.3	12.1 (1995/01)
Grand Total:					48.3

S 12

V.W.R. SCIENTIFIC
1310 GOSHEN PKWY
WEST CHESTER PA 19380

Service Address
1310 GOSHEN PKWY

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	1298.0	09/25/1995	1217.6	80.4 (1995/04)
01	09/25/1995	1217.6	06/29/1995	1128.32	89.28 (1995/03)
01	06/29/1995	1128.32	03/28/1995	1057.5	70.82 (1995/02)
01	03/28/1995	1057.5	12/22/1994	986.1	71.4 (1995/01)
Grand Total:					311.9

5647

RICHARD J & DEBORAH KREAMER
1450 BOOT RD
WEST CHESTER PA 19380

Service Address
1450 BOOT RD

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995		09/29/1995	0	11.055 (1995/04)
01	09/29/1995		06/29/1995	0	8.434 (1995/03)
01	06/29/1995		03/28/1995	0	9.657 (1995/02)
01	03/28/1995		12/28/1994	0	11.400 (1995/01)
Grand Total:					40.546

5663

MATLACK FLORIST
210 N. CHESTER RD
WEST CHESTER PA 19380

Service Address
210 N CHESTER RD

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995		09/25/1995	0	4.978 (1995/04)
01	09/25/1995		06/29/1995	0	32.980 (1995/03)
01	06/29/1995		03/28/1995	0	13.768 (1995/02)
01	03/28/1995		12/28/1994	0	35.480 (1995/01)
Grand Total:					87.206

5674

TREE TOPS APARTMENTS METRIC PR
100 TREETOPS LA
WEST CHESTER PA 19380

Service Address
100 TREETOPS LA...POOL

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	3721.17	09/25/1995	3601.89	119.28 (1995/04)
01	09/25/1995	3601.89	06/29/1995	3354.43	247.46 (1995/03)
01	06/29/1995	3354.43	03/28/1995	3176.2	178.23 (1995/02)
01	03/28/1995	3176.20	12/22/1994	3145.33	30.87 (1995/01)
Grand Total:					575.84

5675

CHURCH GOSHEN BAPTIST
1451 WEST CHESTER PK
WEST CHESTER PA 19382

Service Address
1451 WEST CHESTER PK

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	920.82	09/25/1995	865.05	55.77 (1995/04)
01	09/25/1995	865.05	06/29/1995	824.52	40.53 (1995/03)
01	06/29/1995	824.52	03/28/1995	755.72	68.8 (1995/02)
01	03/28/1995	755.72	12/22/1994	695.6	60.12 (1995/01)
Grand Total:					225.22

88

ROBERT E./JOHN F. DELPHAIS/DULService Address
722 E. UNION ST 1313 WEST CHESTER PK
WEST CHESTER PA 19380

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	06/29/1995	5.398	03/28/1995	3.706	1.692 (1995/02)
01	03/28/1995	3.706	04/01/1992	2.487	1.219 (1995/01)
Grand Total:					2.911

89

SERVICE COMPANY AMERICAN TIRE Service Address
1305 WEST CHESTER PK 1305 WEST CHESTER PK
WEST CHESTER PA 19382

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	448.02	09/25/1995	407.4	40.62 (1995/04)
01	09/25/1995	407.40	06/29/1995	383.81	23.59 (1995/03)
01	06/29/1995	383.81	03/28/1995	372.05	11.76 (1995/02)
01	03/28/1995	372.05	12/22/1994	347.37	24.68 (1995/01)
Grand Total:					100.65

890

COMPANY GOSHEN FIRE CO Service Address
1320 PARK AVE. 1320 PARK AVE
WEST CHESTER PA 19380

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	91.35	09/25/1995	85.06	6.29 (1995/04)
01	09/25/1995	85.06	06/29/1995	79.03	6.03 (1995/03)
01	06/29/1995	79.03	03/28/1995	73	6.03 (1995/02)
01	03/28/1995	73	12/22/1994	45.1	27.9 (1995/01)
Grand Total:					46.25

891

CHRIST CHURCH OF Service Address
1326 PARK AVE 1326 PARK AVE
WEST CHESTER PA 19380

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	91.2	09/25/1995	82.6	8.6 (1995/04)
01	09/25/1995	82.6	06/29/1995	81.2	1.4 (1995/03)
01	06/29/1995	81.2	03/28/1995	76.9	4.3 (1995/02)
01	03/28/1995	76.9	12/22/1994	53.9	23 (1995/01)
Grand Total:					37.3

896

R. K. MARKETING INC. Service Address
1339 WEST CHESTER PK 1339 WEST CHESTER PK
WEST CHESTER PA 19382

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	613.8	09/25/1995	584.9	28.9 (1995/04)
01	09/25/1995	584.9	06/29/1995	543.9	41 (1995/03)
01	06/29/1995	543.9	03/28/1995	515.2	28.7 (1995/02)
01	03/28/1995	515.2	12/22/1994	491.1	24.1 (1995/01)
Grand Total:					122.7

5700

FRANK YOCUM
1342- E WEST CHESTER PK
WEST CHESTER PA 19382

Service Address
1342 WEST CHESTER PK

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	30.6	09/29/1995	28.9	1.7 (1995/04)
01	09/29/1995	28.9	06/29/1995	25.1	3.8 (1995/03)
01	06/29/1995	25.1	03/28/1995	23	2.1 (1995/02)
01	03/28/1995	23	12/22/1994	21	2 (1995/01)
Grand Total:					9.6

5701

TED HARRISON
1512 E STRASBURG RD
WEST CHESTER PA 19380

Service Address
RESTAURANT

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	52.6	09/29/1995	49.8	2.8 (1995/04)
01	09/29/1995	49.8	06/29/1995	47.8	2 (1995/03)
01	06/29/1995	47.8	03/28/1995	44.9	2.9 (1995/02)
01	03/28/1995	44.9	12/22/1994	42	2.9 (1995/01)
Grand Total:					10.6

5702

ROBERT CARNEY
1342- C WEST CHESTER PK
WEST CHESTER PA 19380

Service Address
1342- C WEST CHESTER PK

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	14.6	09/25/1995	13.4	1.2 (1995/04)
01	09/25/1995	13.4	06/29/1995	3.4	10 (1995/03)
01	06/29/1995	34	03/29/1995	29	5 (1995/02)
01	03/28/1995	29	12/22/1994	23	6 (1995/01)
Grand Total:					22.2

5703

WILLIAM JONES
1342- E WEST CHESTER PK
WEST CHESTER PA 19382

Service Address
1342- E WEST CHESTER PK

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	33	09/25/1995	30	3 (1995/04)
01	09/25/1995	30	06/29/1995	27	3 (1995/03)
01	06/29/1995	27	03/28/1995	24	3 (1995/02)
01	03/28/1995	24	12/22/1994	21	3 (1995/01)
Grand Total:					12

5704

PRINT ALL
1342- D WEST CHESTER PK
WEST CHESTER PA 19380

Service Address
1342 WEST CHESTER PK

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	20	09/25/1995	15	5 (1995/04)
01	09/25/1995	15	06/29/1995	11.9	3.1 (1995/03)
01	06/29/1995	119.95	03/28/1995	111	8.95 (1995/02)
01	03/28/1995	111	12/22/1994	96	15 (1995/01)
Grand Total:					32.05

705 SPIROS NTONTOS Service Address
4 PAXON CIR DONATO'S/1332AW.C.PK
BROOMALL PA 19008

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	67.93	09/25/1995	59.22	8.71 (1995/04)
01	09/25/1995	59.22	06/29/1995	52.572	6.648 (1995/03)
01	06/29/1995	52.572	03/28/1995	47.17	5.402 (1995/02)
01	03/28/1995	47.17	12/28/1994	41.93	5.24 (1995/01)
Grand Total:					26

708 THRIFTY GOURMET BRASS LADLE Service Address
2 WATERVIEW RD 2 WATERVIEW RD
WEST CHESTER PA 19380

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	964.2	09/25/1995	923.39	40.81 (1995/04)
01	09/25/1995	923.39	06/29/1995	857.2	66.19 (1995/03)
01	06/29/1995	857.2	03/28/1995	790	67.2 (1995/02)
01	03/28/1995	790.0	12/22/1994	734.9	55.1 (1995/01)
Grand Total:					229.3

5709 ATTN: OFFICE WATERVIEW APARTMENTS Service Address
2 WATERVIEW RD SWIM CLUB
WEST CHESTER PA 19380

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	63	09/25/1995	0	63 (1995/04)
01	09/25/1995		06/29/1995	189.6	63 (1995/03)
01	06/29/1995	189.6	03/28/1995	126.6	63 (1995/02)
01	03/28/1995	126.6	12/22/1994	63.3	63.3 (1995/01)
Grand Total:					252.3

5710 HEADS YOU WIN Service Address
929 S HIGH ST 2 WATERVIEW RD
WEST CHESTER PA 19382

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	507.9	09/25/1995	462.5	45.4 (1995/04)
01	09/25/1995	462.5	06/29/1995	429.3	33.2 (1995/03)
01	06/29/1995	429.3	03/28/1995	398.4	30.9 (1995/02)
01	03/28/1995	398.4	12/22/1994	358	40.4 (1995/01)
Grand Total:					149.9

5711 #4893 DOMINOS Service Address
P.O BOX 949 2 WATERVIEW RD
ANN ARBOR MI 48106

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	316.1	09/25/1995	299.4	16.7 (1995/04)
01	09/25/1995	299.4	06/29/1995	281.3	18.1 (1995/03)
01	06/29/1995	281.3	03/28/1995	240.4	40.9 (1995/02)
01	03/28/1995	240.4	12/22/1994	217.6	22.8 (1995/01)
Grand Total:					98.5

5811 BLDG PARTNERS CORDES & SLACK Service Address
1450 BOOT RD 1450 BOOT RD
WEST CHESTER PA 19380

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995		09/29/1995	0	11.055 (1995/04)
01	09/29/1995		06/29/1995	0	8.434 (1995/03)
01	06/29/1995		03/28/1995	0	9.657 (1995/02)
01	03/28/1995		12/28/1994	0	11.400 (1995/01)
Grand Total:					40.546

5813 SPIROS NTONTOS Service Address
4 PAXON CIRCLE LAUNDRY/1332B WC PK
BROOMALL PA 19008

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	15700.3	09/25/1995	15234.6	465.7 (1995/04)
01	09/25/1995	15234.6	06/29/1995	14813.7	420.9 (1995/03)
01	06/29/1995	14813.7	03/28/1995	14375.2	438.5 (1995/02)
01	03/28/1995	14375.2	12/28/1994	13900.7	474.5 (1995/01)
Grand Total:					1799.6

5814 SPIROS NTONTOS Service Address
4 PAXON CIR TANNING/1332C WC PK
BROOMALL PA 19008

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	378.00	09/25/1995	355.47	22.53 (1995/04)
01	09/25/1995	355.47	06/29/1995	273.42	82.05 (1995/03)
01	06/29/1995	273.42	03/28/1995	198.32	75.1 (1995/02)
01	03/28/1995	198.32	12/28/1994	163.01	35.31 (1995/01)
Grand Total:					214.99

5818 GARY TOLL Service Address
1409 WEST CHESTER PK 1409 WEST CHESTER PK
WEST CHESTER PA 19382

Number	Curr Date	Reading	Prev Date	Reading	Usage Billed
01	12/28/1995	23.13	09/25/1995	20.52	2.61 (1995/04)
01	09/25/1995	20.52	06/29/1995	15.1	5.42 (1995/03)
01	06/29/1995	15.10	03/28/1995	9.7	5.4 (1995/02)
01	03/28/1995	9.7	12/28/1994	2.4	7.3 (1995/01)
Grand Total:					20.73

East Goshen Township

Consumption Report Printed: 02/01/1996 14:31:55 Page: 17

Water Reading Date Range : (From:) 03/28/1995 (Thru:) 12/28/1995

Printed for routes: 0002 thru 0002

Consumption is : 23,668

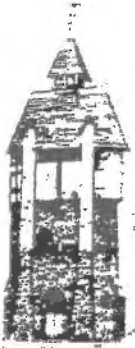
East Goshen Township

Consumption Report Printed: 02/01/1996 15:31:50 Page: 18

Summary by billing cycle/year

Cycle/Yr	Consumption
(1995/01)	6,147
(1995/02)	6,051
1995/03)	5,497
(1995/04)	5,971

APPENDIX 6
CONTRIBUTING MUNICIPALITIES
B. WESTTOWN TOWNSHIP



WESTTOWN TOWNSHIP

1081 Wilmington Pike
West Chester, PA 19382

Post Office Box 79
Westtown, PA 19385

610-692-1930

February 15, 1996

Glace Associates, Inc.
Attn: Alison J. Schuler
Operations Specialist
3605 Trindle Road
Camp Hill, PA 17011

RE: West Goshen Township
1995 Annual Report

Dear Ms. Schuler:

1. Past Flow Data: 5 Years
 - 1991 - 54,948,218
 - 1992 - 55,159,118
 - 1993 - 55,314,554
 - 1994 - 70,511,066
 - 1995 - 82,123,912
 - Projected Flow: 1996 - 82,138,912
 - 1997 - 82,183,912
2. Pump Stations
 - A. Pleasant Grove: Collection Capacity 490,000 GPD
 - Present Maximum Flow 116,630 GPD
 - Projected Maximum Flow - 1996 - 131,630 GPD
 - 1997 - 176,630 GPD
 - B. Cobblefield: Collection Capacity 15,400 GPD
 - Present and Projected Flow 23,000 GPD*
 - *New Meter
 - C. Westtown/Wedgewood Park: Capacity 87,300 GPD
 - Present Flow reading 11,200 GPD*
 - *Meter not functioning correctly -
 - 84 homes x 229..... (19,236 GPD)
3. Sewer Extensions
 - A. None
 - B. None
 - C. Westwoods - 39 homes. Increased capacity from West Goshen, 15000 GPDs, which includes capacity for Enclave at Pleasant Woods
 - McCawley Tract - 252 apartments, 45,000 GPDs
 - Township presently supporting treatment plant for stream discharge, but negotiating with WG for additional capacity to service project

RE: West Goshen Township
1995 Annual Report
February 15, 1996
Page 2 of 2

D. 4
E. 724

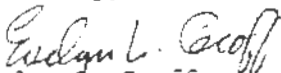
Industrial Waste Users - Not applicable

Inflow and Infiltration - A survey of the collection system was conducted based on the number of homes serviced plus additional institutionals, etc., and related results to metered flows. Analysis of this survey by sanitary sewer engineer was that I/I was minimal and the cost to conduct tests for specific numbers would far outweigh payment for treatment of additional flow by WG.

Comments: The Wedgewood/Westtown pump station reportedly is still reading low in my opinion. I'm told the flow is too small, too intermittent, to register an accurate flow. When the McCawley tract is developed, the Supervisors plan to eliminate the pump station and send the sewage by gravity to the Pleasant Grove pump station.

If you have any questions, do not hesitate to call.

Sincerely,


Evelyn L. Groff
Township Secretary

11-11-11

NEW HAVEN West Conn
EST. EXTERIOR PLIN 225,000

[illegible]

WEST GOSHEN SEWAGE TREATMENT PLANT SERVICE AREA

Page 2 of 3

4th QUARTER OF 19 95

MUNICIPALITY Westtown
EST. EXISTING FLOW 225,000

PRIORITY B: Preliminary Stage

NAME & LOCATION	DER PLAN. MOD. #	PLANNING MODULE APPROVAL DATE			DATE ON PRIORITY LIST	TOTAL EDU APPR.	FLOW PER EDU	TOTAL FLOW MED	CUM. EDUs CONNECT.	EDUs LEFT
		LOCAL	WEST GOSHEN	DER						
Westwoods - 39 homes					1996	39	250	9.750	0	39
Kerwood & Westwood Roads										
TOTAL						39		9.750		39

4th QUARTER OF 19 95

Fig. 3 of

MUNICIPALITY	Westtown
EST. EXISTING FLOW	225,000

Verbal Discussion/Concept Plan

[illegible]

APPENDIX 6
CONTRIBUTING MUNICIPALITIES
C. WEST WHITELAND TOWNSHIP



Ms. Alison J. Shuler
Glace Associates Inc.

February 20, 1996
Page 2

2. Pumping Station (i.e., Grubbs Mill Road P.S.)

- a. Each of the two pumps has been discharging at approximately 1,250 gpm.
- b. The present maximum flows are in a range of approximately 450,000 gpd.
- c. The projected maximum flow during the next two years is estimated to be 0.60 mgd (single day peak).

SEWER EXTENSION

Attached is a copy of the Township's collection system plot plan (drawing 5505-013-D-000). We have indicated that portion of West Whiteland from which sewage is conveyed to the "West Goshen" pump station. There are approximately 1,056 EDU's in this subservice area. Within the service territory, approximately 28 EDU's were "added" during the past year.

Proposed or current projects that will increase the number of connections in this area include:

- a. Exton Station III, IV
- b. Indian King V
- c. Mantas & Tarquini
- d. Eveshan Village
- e. Aldergate
- f. Waltz Lea

INDUSTRIAL WASTE USERS

There are no industrial waste users in West Whiteland's service area draining to West Goshen. In 1986, the West Whiteland Supervisors adopted an ordinance that is essentially identical to West Goshen's ordinance regulating industrial waste discharges; a copy has previously been submitted to West Goshen Township. No revisions to the ordinances were adopted in 1995.

INFLOW AND INFILTRATION

During 1995 West Whiteland continued to make significant efforts to identify and reduce infiltration/inflow throughout its entire collection and interceptor system. These efforts included



February 20, 1996

Ms. Alison J. Shuler
Operations Specialist
Glace Associates Inc.
3705 Trindle Road
Camp Hill PA 17011

Re: West Whiteland Township
West Goshen Sewer Authority's
Chapter 94 Report
SSM File 5469-058

Dear Ms. Shuler:

We are submitting the following information as requested by the West Goshen Sewer Authority to assist in preparing its 1995 Municipal Wasteload Management Report. Our responses are listed in the same sequence as the corresponding items in your January 29, 1996 letter to us; they are based on our available information.

FLOW DATA

1. The average daily flow from West Whiteland Township to the West Goshen Sewer Authority system was 389,843 gpd in 1995.

As you are aware, West Whiteland Township has entered into an agreement with West Goshen Township that will allow the abandonment of the Chester Creek pump station, and the connection of its subservice area to the West Goshen sewage collection system by gravity. A contract for this work was awarded in December 1995, and it is anticipated that the project will be completed by July 1996. At that time, approximately 0.15 mgd of additional sewage flow would be contributed to the West Goshen system (and removed from the DARA system).

Past and projected five year flows to West Goshen are as follows:

	<u>1991</u>	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>
Flows(mgd)	0.378	0.380	0.387	0.403	0.390	0.475	0.54	0.65	0.66	0.57



Ms. Alison J. Shuler
Glance Associates Inc.

February 20, 1996
Page 3

flow monitoring and televising more than 3,300 feet of collection system lines. The Township is committed to an on-going infiltration/inflow reduction program which will continue in 1996. Approximately 60,000 gpd of I/I was eliminated from the West Goshen service area during the year.

We presently know of no areas of the collection or pumping systems where capacity is being exceeded. The collection system is considered to be in good working condition.

We trust this information will be helpful to you. Should you require any additional information, please contact us.

Very truly yours,

Darryl A. Jenkins
Darryl A. Jenkins
Project Engineer

DAJ:ey
Enclosure

cc: Stephen J. Ross (w/enc.)
Joseph P. Roscioli (w/enc.)
West Whiteland Municipal Services Commission
SSM File 5469-098

WEST WHITELAND TOWNSHIP
CHESTER COUNTY, PENNSYLVANIA

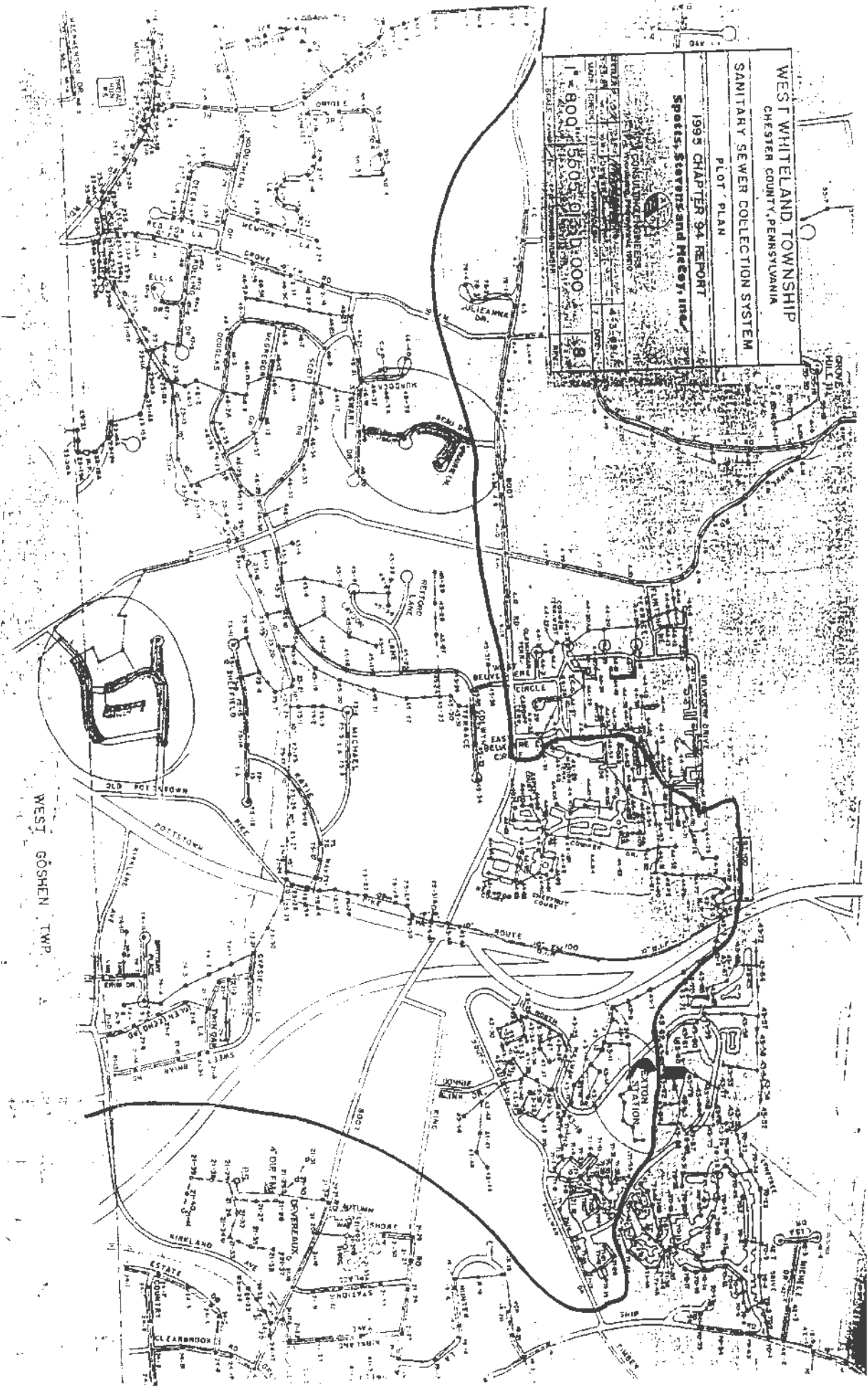
SANITARY SEWER COLLECTION SYSTEM

PLOT PLAN

1995 CHAPTER 94 REPORT
Speers, Stevens and Healy, Inc.

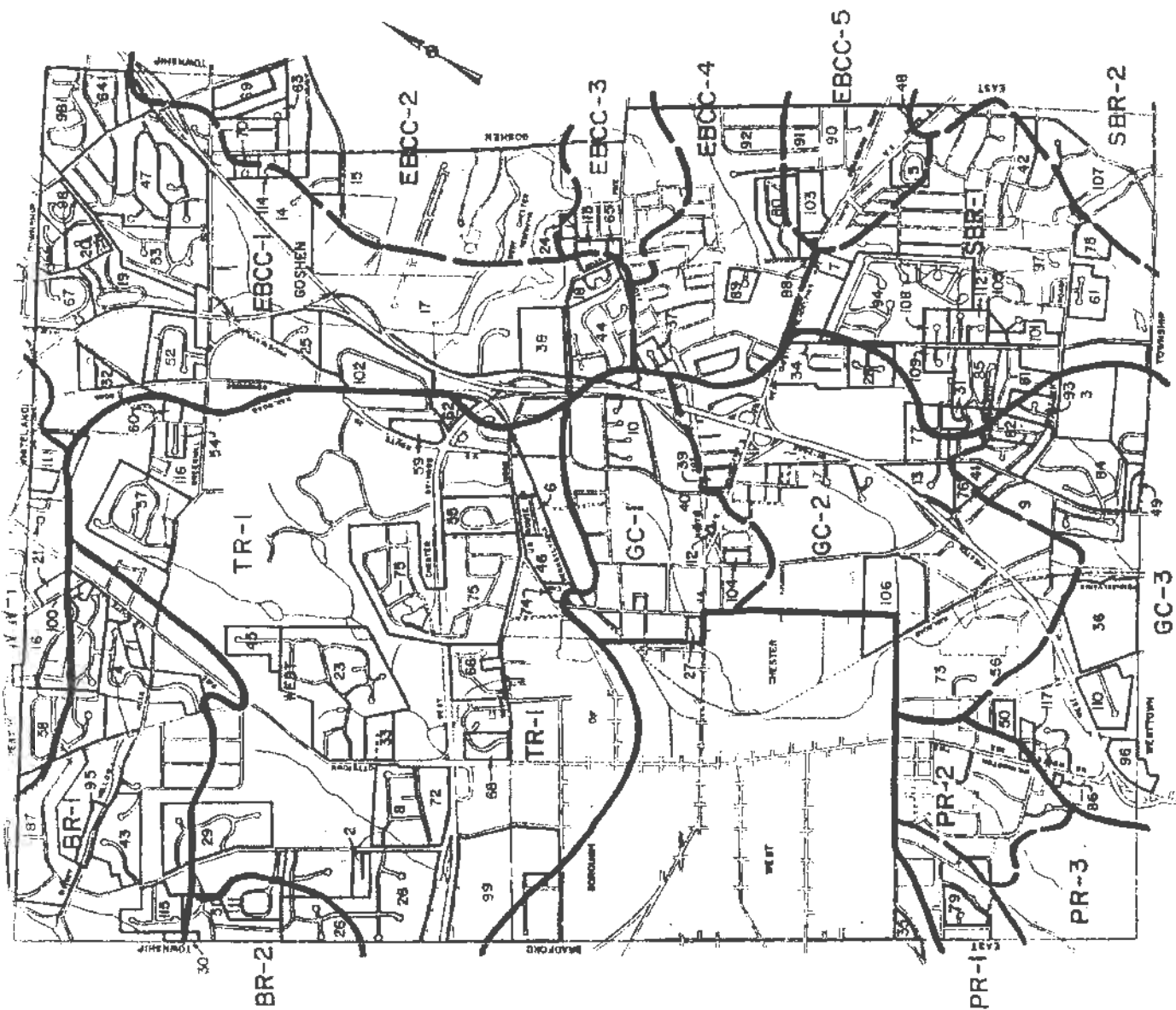
ENGINEERS
1000 N. MARKET STREET, SUITE 200
PHILADELPHIA, PA 19107
TEL: 215-592-1000 FAX: 215-592-1001

1" = 800' 5505' 9131' 000' 000'



WEST GOSHEN TWP.

APPENDIX 7
SEWER EXTENSIONS, WEST GOSHEN TOWNSHIP



LEGEND

- DRAINAGE AREA MAJOR DIVIDE
- - - DRAINAGE AREA MINOR DIVIDE
- PR — PLUM RUN
- TR — TAYLOR RUN
- GC — GOOSE CREEK
- WW — WEST WHITELAND TOWNSHIP
- SBR — STONY BROOK RUN
- BR — BROAD RUN
- EBCC — EAST BRANCH CHESTER CREEK

NUMBERS OF SUBDIVISION CORRESPOND TO TABLE 2-6 OF REPORT.

WEST GOSHEN TOWNSHIP
CHESTER COUNTY, PENNSYLVANIA

MAJOR SUBDIVISIONS

SCALE	DATE	FILE CODE	PLAN NO.
1"=1000'	MAR. 1996	89036.A	
GLACE ASSOCIATES, INC., CAMP HILL, PENNA.			

APPENDIX B

TOWNSHIP ORDINANCES

SEE

**WEST GOSHEN TOWNSHIP
SUBDIVISION AND LAND DEVELOPMENT ORDINANCE
1976 (as Amended 1981,1983,1986,1990,1993)**

**COMPREHENSIVE PLAN
WEST GOSHEN TOWNSHIP
OCTOBER, 1977**

AND

**WEST GOSHEN TOWNSHIP
REVISED ZONING ORDINANCE
MAY 25, 1992**

ON FILE AT THE WEST GOSHEN TOWNSHIP MUNICIPAL BUILDING

APPENDIX C

PRIME AGRICULTURAL LAND

APPENDIX C

PRIME AGRICULTURAL LAND

As seen from the listing of soils within West Goshen Township on page GP - 18 of the Plan, and their mapping in Exhibits 2-10 and 2-11, it appears that many soils are considered either prime agricultural land or of statewide importance. Although West Goshen Township does not utilize an agricultural preservation policy, if and when various facilities are constructed, the utmost care will be taken to preserve these soils through erosion and sediment pollution control plans.

LIST Prime farmland soils

IMPORTANT FARMLANDS OF CHESTER COUNTY, PENNSYLVANIA

The Department of Agriculture and the Soil Conservation Service are concerned about any action that tends to impair the productive capacity of American agriculture. The Nation needs to know the extent and location of the best land for producing food, feed, fiber, forage and oilseed crops, the land that has special qualities for growing specific high-value crops, and other important lands for producing crops.

It is SCS policy to make and keep current an inventory of prime farmland and unique farmland of the Nation. This inventory is being carried out in cooperation with other interested agencies at the national, state and local levels of government. The objective of the inventory is to identify the extent and location of the important rural lands needed to produce food, feed, fiber, forage and oilseed crops.

The Important Farmlands Map of Chester County, Pennsylvania, has been published by the SCS. This map displays three of the categories recognized in the national inventory. Definition of types of important farmlands are as follows.

Definitions

Prime Farmland

Prime farmland is land best suited for producing food, feed, forage, fiber and oilseed crops, and also available for these uses (the land could be cropland, pastureland, rangeland, forest land, or other land but not builtup land or water). It has the soil quality, growing season and moisture supply needed to produce sustained high yields of crops economically when treated and managed, including water management, according to modern farming methods.

Prime farmland meets the following criteria:

1. The soils have an adequate moisture supply.
2. The soils have a suitable soil temperature regime. These are soils that, at a depth of 20 inches (50 cm), have a mean annual temperature higher than 32°F (0°C).
3. The soils have a pH between 4.5 and 8.4 in all horizons within a depth of 40 inches (1 meter) or in the root zone if the root zone is less than 40 inches deep. This range of pH is favorable for growing a wide variety of crops without adding large amounts of amendments.
4. The soils have no water table or a water table that is maintained at a sufficient depth during the cropping season to allow food, feed, fiber, forage and oilseed crops common to the area to be grown.

5. The soils lack excessive soluble salts that inhibit plant growth.
6. The soils are not flooded frequently during the growing season (less often than once in two years).
7. The soils do not have a serious erosion hazard.
8. The soils have a permeability rate of at least 0.06 inches (0.15 cm) per hour in the upper 20 inches (50 cm).
9. Less than 10 percent of the surface layer in these soils consists of rock fragments coarser than three inches (7.6 cm). These soils present no particular difficulty in cultivating with large equipment.

A list of soils that qualify as prime farmland in Chester County is attached to this report.

Unique Farmland

Unique farmland is land other than prime farmland that is used for the production of specific high-value food and fiber crops. It has the special combination of soil quality, location, growing season and moisture supply needed to produce sustained high quality and/or high yields of a specific crop when treated and managed according to modern farming methods. Examples of such crops are citrus, olives, cranberries, fruit and vegetables.

Unique farmland has the following characteristics:

1. It is used for a specific high-value food or fiber crop.
2. It has a moisture supply that is adequate for the specific crop. The supply is from stored moisture, precipitation or a developed irrigation system.
3. It combines favorable factors of soil quality, growing season, temperature, humidity, air drainage, elevation, aspect or other conditions such as nearness to market that favor the growth of a specific food or fiber crop.

Chester County chose not to recognize any land in this category.

Additional Farmland of Statewide Importance

This is land, in addition to prime and unique farmlands, that is of statewide importance for the production of food, feed, fiber, forage and oilseed crops. Criteria for defining and delineating this land is determined by the appropriate state agency or agencies. In Pennsylvania, Capability Class II land and Capability Class III land that does not qualify as prime farmland has been designated as additional farmland of statewide importance.

Agriculture Handbook No. 210, "Land-Capability Classification," issued in September 1961 by the U. S. Government Printing Office, defines the eight capability classes. A capability class is assigned to each soil.

A list of soils that qualify as additional farmland of statewide importance in Chester County is attached to this report.

Additional Farmland of Local Importance

In some local areas, there is concern for certain additional farmlands for the production of food, feed, fiber, forage and oilseed crops, even though these lands are not identified as having national or statewide importance. Where appropriate, these lands are to be identified by the local agency or agencies concerned.

Additional farmland that qualifies as Agricultural Land Capability Class IV has been identified on the Chester County Important Farmlands Map.

General

A legend on the front of the Important Farmlands Map identifies different kinds of land and their acreage in the county. Areas not colored are other land. These areas do not fit any of the categories listed in the definitions and are not water or urban areas more than 10 acres in size.

The criteria for identification of prime farmland and additional farmland of statewide importance are entirely related to soil characteristics. They were set up to facilitate the identification and inventory of the state's most productive farmland in a reasonable time by using existing soil surveys.

Most of the prime farmland and much of the additional farmland of statewide importance is now used for crops; however, it could be in pasture, range, forest or other land uses and still qualify as prime farmland. Urban buildup land and water are excluded. The rationale for this approach is that land not committed to irreversible uses may be available for cropping. Decisionmakers must be aware of the long-term implications of various land use options for the production of food, feed, etc., and the trade-offs involved. Actions that put high quality farmland in irreversible uses should be initiated only if these actions are clearly in the public interest.

This inventory does not constitute a designation of any land area to a specific land use. Such designations are the prerogative of responsible state and local officials.

Finally, it is important to emphasize that prime farmland is one of the most important resources of the Nation. This exceptional land can be farmed continuously or nearly continuously without degrading the environment. It will produce the most food, feed, etc., with the least amount of energy used. It responds exceptionally well to fertilizer and other

chemical applications with limited loss of residues by leaching or erosion. This land has the highest percentage of soils that can be minimum tilled. It is the most responsive to management and requires the least investment for maintaining productivity.

The inventories of prime and unique farmlands and other important farmlands are dynamic. New areas may be developed and others will be converted to irreversible uses. Thus, the inventories must be updated periodically to reflect any significant changes.

LIST OF MAPPING UNITS THAT QUALIFY AS PRIME FARMLAND
Chester County

Manuscript Symbol	Mapping Unit Name
BdA	Bedford silt loam, 0 to 3 percent slopes
BdB <u>1/</u>	Bedford silt loam, 3 to 8 percent slopes
BdB2 <u>1/</u>	Bedford silt loam, 3 to 8 percent slopes, moderately eroded
BrB2	Brandywine loam, 3 to 8 percent slopes, moderately eroded
BtB2	Brecknock channery silt loam, 3 to 8 percent slopes, moderately eroded
BxB2	Bucks silt loam, 3 to 8 percent slopes, moderately eroded
CdA	Chester silt loam, 0 to 3 percent slopes
CdA2	Chester silt loam, 0 to 3 percent slopes, moderately eroded
CdB	Chester silt loam, 3 to 8 percent slopes
CdB2	Chester silt loam, 3 to 8 percent slopes, moderately eroded
CdB3 <u>2/</u>	Chester silt loam, 3 to 8 percent slopes, severely eroded
Ch	Chewacla silt loam
CkB2	Chrome gravelly silty clay loam, 3 to 8 percent slopes, moderately eroded
CmA	Conestoga silt loam, 0 to 3 percent slopes
CmA2	Conestoga silt loam, 0 to 3 percent slopes, moderately eroded
CmB2	Conestoga silt loam, 3 to 8 percent slopes, moderately eroded
CnB3 <u>2/</u>	Conestoga silt loam, 3 to 8 percent slopes, severely eroded
Cn	Congaree silt loam
CoA <u>3/</u>	Conowingo silt loam, 0 to 3 percent slopes
EcB	Edgemont channery loam, 3 to 8 percent slopes
EcB2	Edgemont channery loam, 3 to 8 percent slopes, moderately eroded
GeA	Glenelg channery silt loam, 0 to 3 percent slopes
GeA2	Glenelg channery silt loam, 0 to 3 percent slopes, moderately eroded
GeB	Glenelg channery silt loam, 3 to 8 percent slopes
GeB2	Glenelg channery silt loam, 3 to 8 percent slopes, moderately eroded
GgB3 <u>2/</u>	Glenelg channery silt loam, 3 to 8 percent slopes, severely eroded
GnA	Glenville silt loam, 0 to 3 percent slopes
GnB	Glenville silt loam, 3 to 8 percent slopes
GnB2	Glenville silt loam, 3 to 8 percent slopes, moderately eroded
HaA2	Hagerstown silt loam, 0 to 3 percent slopes, moderately eroded
HaB2	Hagerstown silt loam, 3 to 8 percent slopes, moderately eroded
HoB2	Hollinger silt loam, 3 to 8 percent slopes, moderately eroded
LeB	Lehigh silt loam, 3 to 8 percent slopes
LeB2	Lehigh silt loam, 3 to 8 percent slopes, moderately eroded
Ls	Lindside silt loam
MgA2	Manor loam, 0 to 3 percent slopes, moderately eroded
MgB2 <u>4/</u>	Manor loam, 3 to 8 percent slopes, moderately eroded
MgB3 <u>2/ 4/</u>	Manor loam, 3 to 8 percent slopes, severely eroded
MoB2	Montalto channery silt loam, 3 to 8 percent slopes, moderately eroded
NaA	Neshaminy gravelly silt loam, 0 to 3 percent slopes
NaB2	Neshaminy gravelly silt loam, 3 to 8 percent slopes, moderately eroded
PmB2	Penn silt loam, 3 to 8 percent slopes, moderately eroded
PtB2	Penn and Lansdale sandy loams, 3 to 8 percent slopes, moderately eroded
RdA	Readington silt loam, 0 to 3 percent slopes
Ro	Rowland silt loam
Rp	Rowland silt loam, dark surface

1/ This soil is presently inactive but fits concept of Clarksburg series which has a K value of .37. Some nonprime farmland areas

2 - Chester County

Manuscript

Symbol

Mapping Unit Name

are included in this mapping unit; however, it is our best judgement that in this county, over 50 percent of this unit have slopes of less than 5.4 percent and this soil qualifies for prime farmland in Chester County.

- 2/ Soil is minor in extent. Field checks indicate it fits concept of Manor series. Average slopes in most areas are less than 5.4.
- 3/ Soils are being recorrelated as moderately eroded. Field observations indicate that most areas are cultivated and degrees of erosion are obliterated and impossible to separate in mapping.
- 4/ Field observations indicate that this soil is deeper than described in the soil survey report. It has an available water holding capacity of 4 inches or more and it qualifies for prime farmland.

LIST OF SOIL MAPPING UNITS THAT QUALIFY AS
ADDITIONAL FARMLAND OF STATEWIDE IMPORTANCE

Chester County

<u>Manuscript Symbol</u>	<u>Mapping Unit Name</u>
AgA	Aldino silt loam, 0 to 3 percent slopes
AgB2	Aldino silt loam, 3 to 8 percent slopes, moderately eroded
BdB	Bedford silt loam, 3 to 8 percent slopes
BdB2	Bedford silt loam, 3 to 8 percent slopes, moderately eroded
BeB2	Beltsville silt loam, 3 to 8 percent slopes, moderately eroded
Bo	Bowmansville silt loam
BrC	Brandywine loam, 8 to 15 percent slopes
BrC2	Brandywine loam, 8 to 15 percent slopes, moderately eroded
BtC2	Brecknock channery silt loam, 8 to 15 percent slopes, moderately eroded
CdB3	Chester silt loam, 3 to 8 percent slopes, severely eroded
CdC	Chester silt loam, 8 to 15 percent slopes
CdC2	Chester silt loam, 8 to 15 percent slopes, moderately eroded
CkC2	Chrome gravelly silty clay loam, 8 to 15 percent slopes, moderately eroded
CmC2	Conestoga silt loam, 8 to 15 percent slopes, moderately eroded
CoA	Conowingo silt loam, 0 to 3 percent slopes
CoB2	Conowingo silt loam, 3 to 8 percent slopes, moderately eroded
EcC	Edgemont channery loam, 8 to 15 percent slopes
EcC2	Edgemont channery loam, 8 to 15 percent slopes, moderately eroded
GeB3	Glenelg channery silt loam, 3 to 8 percent slopes, severely eroded
GeC	Glenelg channery silt loam, 8 to 15 percent slopes
GeC2	Glenelg channery silt loam, 8 to 15 percent slopes, moderately eroded
GnC2	Glenville silt loam, 8 to 15 percent slopes, moderately eroded
Gu	Guthrie silt loam
HaC2	Hagerstown silt loam, 8 to 15 percent slopes, moderately eroded
HoC2	Hollinger silt loam, 8 to 15 percent slopes, moderately eroded
LaA	Lawrence silt loam, 0 to 3 percent slopes
LaB	Lawrence silt loam, 3 to 8 percent slopes
LeB	Lehigh silt loam, 3 to 8 percent slopes
LeB2	Lehigh silt loam, 3 to 8 percent slopes, moderately eroded
LeC3	Lehigh silt loam, 8 to 15 percent slopes, severely eroded
MgB3	Manor loam, 3 to 8 percent slopes, severely eroded
MgC	Manor loam, 8 to 15 percent slopes
MgC2	Manor loam, 8 to 15 percent slopes, moderately eroded
MoC2	Montalto channery silt loam, 8 to 15 percent slopes, moderately eroded
NaC2	Neshaminy gravelly silt loam, 8 to 15 percent slopes, moderately eroded
PmC2	Penn silt loam, 8 to 15 percent slopes, moderately eroded
PtC2	Penn and Lansdale sandy loams, 8 to 15 percent slopes, moderately eroded
RdB	Readington silt loam, 3 to 8 percent slopes
RdB2	Readington silt loam, 3 to 8 percent slopes, moderately eroded

APPENDIX D

**ANNUAL WATER SUPPLY REPORTS
AND STATE WATER PLAN**

0- '85

Con... Health...
Department of Environmental Resources
BUREAU OF COMMUNITY ENVIRONMENTAL CONTROL

*****L WATER SUPPLY REPORT

08001/1230023/40002/03-F

A SUB WATER CO
FRED B. ECKARDT
LANCASTER AVENUE
LANR PA 19010

REPORT FOR CALENDAR YEAR JAN. 1 to DEC. 31, 19 90

(Fill in *previous* year)

RETURN BY MARCH 31: D.E.R. District Office or County
Health Department Contact for your County.
(See enclosed contact list)

1230023, 1460073

WATER SUPPLIER
Philadelphia Suburban Water Co.

AND NUMBER

Lancaster Ave.,

Lancaster, PA

ZIP CODE

19010

Name of District, Division or System

Phila. Suburban Water Co.

Population served

830,000

County

Montgomery,
(Chester, Delaware)

P U C

YES

☐ AUTHORITY / COMMISSION / DISTRICT

☐ MUNICIPALITY

☐ ASSOCIATION

☒ INVESTOR

☐ FEDERAL

☐ STATE

☐ MOBILE

☐ OTHER

WATER USE FOR REPORT YEAR

WATER USE FOR REPORT YEAR - Including purchased water: 32,249,860.633 53,409,295.000 Gallons

DAILY WATER USE - Including purchased water (GPD): 88,355,783 97,594,200 Gallons

water use for the year divided by 365 days).

WATER USE FOR REPORT YEAR: Aug. 4, 1990 - 103,435,075 Gallons

WATER USE FOR REPORT YEAR: Mar. 10, 1990 - 80,998,130 Gallons

SERVICE CURTAILED TO CUSTOMERS DURING REPORT YEAR

TES CURTAILED

REASON FOR CURTAILMENT

NATURE OF RESTRICTIONS

N/A

N/A

N/A

METERING

the average age of existing meters? 14 years.

currently installing meters at new connections? x YES NO, unmetered connections? x YES NO

an active meter replacement program for your water system? x YES NO

any meters did you replace during the report year? 12,511

DISTRICT OFFICE

AVERAGE DAILY WATER USE

TYPE	METERED CONNECTIONS		NONMETERED CONNECTIONS	
	NUMBER ³	WATER USE (GPD) ⁴	NUMBER ³	WATER USE (GPD) ⁴
DOMESTIC	222,660	43,744,140	47% None	5.6
COMMERCIAL	9,776	20,985,254	23% "	20
INDUSTRIAL	820	5,428,276	6% "	57
INSTITUTIONAL	663	839,146 1035382	1% "	54
BULK SALES TO OTHER SUPPLIERS	8	1,565,870 15,4702	2% "	61
UNACCOUNTED FOR WATER ⁵	-----	15,625,913 19,96488	21% "	52
OTHER	1,540	167,184	100% "	
TOTAL	235,467	88,355,783 92354237	"	

Is there a water conservation plumbing code in effect in your service area? YES ☒ NO ☐

Quarterly and Monthly

Did you provide water conservation information to your customers during the report year? YES ☒ NO ☐ FREQUENCY Billing Stuffers.

PRESENT NUMBER OF CONNECTIONS SERVED

LIST PRESENT MUNICIPALITIES SERVED (Cities, Boroughs & Townships)	PRESENT NUMBER OF CONNECTIONS					PERCENT OF POPULATION SERVED
	Domestic ¹	Commercial	Industrial	Institutional	Other ²	
Southern Division	97,417	3,747	232	240	289	Unknown
Western Division	58,779	3,045	302	216	771	"
Eastern Division	57,731	2,551	267	193	443	"
Great Valley	8,733	433	19	14	45	"
(See Sheet "A" for complete list of Municipalities served).						
TOTAL	222,660	9,776	820	663	1,548	235,467

¹ Is the number of "Domestic" connections listed above equal to the number of dwelling units served? (The number of connections does not equal the number of dwelling units in systems where several homes or apartments are served with one meter) YES ☒ NO ☐² Explain "Other" connections: Building accounts, fire accounts and sale to other utilities.³ Total Number of Metered and Nonmetered Connections should equal "Present Number of connections served".⁴ Total Daily Water Use (GPD) for Metered and Nonmetered Connections should equal "Average Daily Water Use" noted on Page 1.⁵ Unaccounted For Water (Leakage, Fire, etc...) is the difference between the water produced at the source(s) and the water used by the customers.

DEMANDS DAILY JUNE 1960 THE WATER SYSTEM JOURNALS

WATER SOURCES (River, Creek, Stream, Lake, Pond or Reservoir)		Is source metered		Average Daily Withdrawal ⁷		Safe Yield or Minimum Production During Dry Years of Record (GPD) ⁸	Facilities which limit the Total Daily Output (eg., Raw Water Pumps, Treatment Works, Transmission Mains, Distribution Systems, etc...)		USE PERMANENT EMERGENCY No
		Yes	No	GPD	(Days)		TYPE	CAPACITY (GPD)	
	Creek	x		19,966,652	(365)	16,000,000	Treatment Works	25,000,000	x
	ing Creek	x		5,422,739	(365)	5,500,000	Allocation	15,000,000	x
	men Creek	x		19,480,547	(365)	24,000,000	Allocation & Pumps	24,000,000	x
	lony Creek	x		9,588,967	(365)	12,000,000	Treatment Plant	12,000,000	x
	kill River	x		11,415,616	(365)	20,000,000	Allocation	20,000,000	x
				()	()				
				()	()				
				()	()				
				65,874,521	()	77,500,000		96,000,000	
TOTAL									

UNDERWATER SOURCES (WELLS)		Is source metered		Average Daily Withdrawal ⁷		Safe Yield or Minimum Production During Dry Years of Record (GPD) ⁸	Facilities which limit the Total Daily Output (eg., Raw Water Pumps, Treatment Works, Transmission Mains, Distribution Systems, etc...)		USE PERMANENT EMERGENCY No
		Yes	No	GPD	(Days)		TYPE	CAPACITY (GPD)	
					()	SEE SHEET "B"			
					()				
					()				
					()				
					()				
					()				
					()				
					()				
					()				
					()				
					()				
					()				
					()				
					()				
					()				
TOTAL					()				

Water levels monitored in each well? YES X NO
 appropriate code(s): See instruction for codes.

DISTRICT OFFICE

GROUNDWATER SOURCES (SPRINGS)	Is source metered		Average Daily Withdrawal ⁷		Safe Yield or Minimum Production During Dry Years of Record (GPD) ⁸	Facilities which limit the Total Daily Output (eg., Raw Water Pumps, Treatment Works, Transmission Mains, Distribution Systems, etc...)		USE		Reason for Period of Non-Use (code) ⁸
	Yes	No	GPD	(Days)		TYPE	CAPACITY (GPD)	PERMANENT	EMERGENCY	
Upper Merion Reservoir	x		6,167,009	(365)	7,200,000	Pumps	20,000,000	x		
				()						
				()						
				()						
				()						
TOTAL			6,167,009	(365)	7,200,000		20,000,000	X		

INTERCONNECTIONS WITH OTHER WATER SUPPLIERS

NAME OF OTHER SUPPLIER	AVERAGE DAILY WATER TRANSFERRED				MAXIMUM WATER TRANSFER CAPABILITY (GPD)		USE		Reason for Period of Non-Use (code) ⁶
	PURCHASE FROM		SALE TO		FROM	TO	PERMANENT EMERGENCY		
	GPD	(Days)	GPD	(Days)					
		()		()					
SEE SHEET "C"		()		()					
		()		()					
TOTAL		()		()					

⁷ Average Daily Withdrawal of all surface and ground water sources, including purchased water if any, should be equal to the "Total Average Daily Water Use" indicated on page 2. (See instruction sheet).

⁸ If the Safe Yield is based on actual pumping tests of the well or spring indicate this by putting a "T" in parenthesis after the number (T).

RAW WATER STORAGE

NAME OF RAW WATER INTAKE DAMS, IMPOUNDING DAMS, RESERVOIRS OR STORAGE TANKS	LOCATION (Body of water if applicable)	STORAGE CAPACITY (Gallons)
Springton Reservoir	Crum Creek, Delaware County	3,500,000,000
Crum Creek Reservoir	" " " "	92,000,000
Green Lane Reservoir	Perkiomen Creek, Montgomery County	4,400,000,000
Pickering Creek Reservoir	Pickering Creek, Chester County	375,000,000
Ironworks Creek Reservoir	Ironworks Creek, Bucks County	650,000,000
Upper Merion Reservoir	McCoy Quarry, Montgomery County	400,000,000
TOTAL		9,417,000,000

NAME OF TREATED WATER RESERVOIR OR STORAGE TANK	IS FACILITY COVERED		USABLE STORAGE CAPACITY (GALLONS)
	YES	NO	
SEE SHEET "D"			
TOTAL			

ADEQUACY OF SYSTEM

If yield, storage or treatment capacity is presently inadequate or will be inadequate within the next five years what is your schedule for improvements which will provide for adequate capacity? Explain below. Attach additional sheets if necessary.

The treatment plant addition (10 M.G.D. Avg., 15 M.G.D. Max.) is currently under construction at Pickering Creek Plant. The new plant will be in service by July 1991, and will meet projected system demands through 2010. PSWCo. is in the process of designing a filter plant at Upper Merion Reservoir, in compliance with regulations. This will add no additional capacity to the existing facility.

I.D. #

DISTRIBUTION SYSTEM

the type, size and length of new pipe installed as an extension to your present system during this past report year?
Ductile Iron and Steel Dia. (inches) 4 to 16-inch Length (feet) 26,049.16' (4.93 miles)
Do you have a pipe replacement program? YES ☒ NO ☐ If yes please indicate the type, size and length of replacement pipe:
Ductile Iron Dia. (inches) 6" and 8" Length (feet) 5,437' (1.03 miles)
How often do you flush the distribution system? once per year.
How often do you work your hydrants during the report year? YES ☒ NO ☐ Frequency twice a year
How often do you work your valves? YES ☒ NO ☐ Frequency once a year on transmission mains.
Do you have an active leak detection program? YES ☒ NO ☐
What type of equipment or methods do you use for leak detection? Sonic leak detection
Do you have a cross connection control program? YES ☒ NO ☐
Has the pressure been inadequate in any part of the system? YES ☒ NO ☐
Explain. Isolated coases of low pressure are periodically received and addressed on a case-by-case basis.

SYSTEM DISTRIBUTION MAP

Submitted in 1985 Annual Water Supply Report (due March 31, 1986) for all Community Water Systems. Community Water Systems permitted after December 31, 1985. If a system has submitted a complete system distribution map with the permit application need submit only a system distribution map update.

Is there a detailed map of the distribution system showing, where available, pipe material and diameter, pressure, and direction of flow. The map should also show transmission lines, treatment facilities, storage facilities, and interconnections with other systems.

SYSTEM DISTRIBUTION MAP UPDATE

To be included annually by all Community Water Suppliers

Is there an update to the System Distribution Map, including as appropriate, description and plot plan of any water line extensions constructed during the report year, type, and location of the extensions and results of pressure surveys. For public water supplies with detailed mapping systems, updated revision should be submitted.

REPORTS, SURVEYS, PLANS

Are there copies of the following reports or updates for the report year.

1. Summary report of sanitary surveys.
2. Updates to the cross connection control program (if applicable).
3. Updates of the emergency response plan.

DISTRICT OFFICE

C-9-10/85

Commonwealth of Pennsylvania
Department of Environmental Resources
BUREAU OF COMMUNITY ENVIRONMENTAL CONTROL

ANNUAL WATER SUPPLY REPORT

15001/1150093/15003/03-n

CHESTER AREA MUN AUTH
FLORA HILL RD
CHESTER PA 19380

REPORT FOR CALENDAR YEAR JAN. 1 to DEC. 31, 19 86

(Fill in *previous* year)

RETURN BY MARCH 31: D.E.R. District Office or County
Health Department Contact for your County.
(See enclosed contact list)

1. # 1150098

WATER SUPPLIER

West Chester Municipal Authority

AND NUMBER

Ferry Hill Rd

ZIP CODE

19380

Name of District, Division or System

West Chester Area

Population served

35,000

County

CHESTER

P U C
YES

OWNERSHIP (Check one)

☒ AUTHORITY / COMMISSION / DISTRICT

☐ MUNICIPALITY

☐ ASSOCIATION

☐ INVESTOR

☐ OTHER

☐ FEDERAL
☐ STATE
☐ MOBILE HOME

WATER USE FOR REPORT YEAR

1987953900

WATER USE FOR REPORT YEAR - Including purchased water:

1,505,932,000

Gallons

PER DAY DAILY WATER USE - Including purchased water (GPD):
water use for the year divided by 365 days).

4,126,000

Gallons

PER DAY WATER USE FOR REPORT YEAR:

5,890,000

Gallons

PER DAY WATER USE FOR REPORT YEAR:

2,950,000

Gallons

SERVICE CURTAILED TO CUSTOMERS DURING REPORT YEAR

WATER CURTAILED

FROM

REASON FOR CURTAILMENT

NATURE OF RESTRICTIONS

TO

N/A

METERING

What is the average age of existing meters? 5 years.

Are you currently installing meters at new connections? X YES

NO, unmetered connections? N/A YES N/A NO

Do you have an active meter replacement program for your water system? X YES

NO

How many meters did you replace during the report year? 600

AVERAGE DAILY WATER USE

TYPE	METERED CONNECTIONS		NONMETERED CONNECTIONS	
	NUMBER ³	WATER USE (GPD) ⁴	NUMBER ³	WATER USE (GPD) ⁴
DOMESTIC	6068	2,104,600	52% Ø	.62
COMMERCIAL	597	387,600	10%	.50
INDUSTRIAL	26	580,500	14%	.23
INSTITUTIONAL	95	448,300 543,300	13%	.32
BULK SALES TO OTHER SUPPLIERS	1	76,900	2%	.08
UNACCOUNTED FOR WATER ⁵ 10.5%		433,100 383,696	9%	.11
OTHER		95,000	100%	
TOTAL	6787	4126,000 4076,586		

Is there a water conservation plumbing code in effect in your service area? YES ☒ NO ☐

Did you provide water conservation information to your customers during the report year? YES ☒ NO ☐ FREQUENCY ANNUALLY

PRESENT NUMBER OF CONNECTIONS SERVED

LIST PRESENT MUNICIPALITIES SERVED (Cities, Boroughs & Townships)	PRESENT NUMBER OF CONNECTIONS					PERCENT OF POPULATION SERVED
	Domestic ¹	Commercial	Industrial	Institutional	Other ²	
WEST CHESTER BORO	3460	244	13	58		
WEST GOSHEN TOWNSHIP	1940	301	13	30	1	
EAST BRADFORD TOWNSHIP	647	27	Ø	6		
EAST GOSHEN TOWNSHIP	18	22	Ø	Ø		
WESTTOWN TOWNSHIP	3	3	Ø	1		
TOTAL	6068	597	26	95	1	

1 Is the number of "Domestic" connections listed above equal to the number of dwelling units served? (The number of connections does not equal the number of dwelling units in systems where several homes or apartments are served with one meter) YES ☒ NO ☐

2 Explain "Other" connections: AUTHORITY USE, PUBLIC, FLUSHING, FIRE, MAIN TEST

3 Total Number of Metered and Nonmetered Connections should equal "Present Number of connections served".

4 Total Daily Water Use (GPD) for Metered and Nonmetered Connections should equal "Average Daily Water Use" noted on Page 1.

5 Unaccounted For Water (Leakage, Fire, etc...) is the difference between the water produced at the source(s) and the water used by the customers.

GROUNDWATER SOURCES (SPRINGS)	Is source metered		Average Daily Withdrawal ⁷		Safe Yield or Minimum Production During Dry Years of Record (GPD) ⁸	Facilities which limit the Total Daily Output (eg., Raw Water Pumps, Treatment Works, Transmission Mains, Distribution Systems, etc...)		USE		Reason for Period of Non-Use (code) ⁶
	Yes	No	GPD	(Days)		TYPE	CAPACITY (GPD)	PERMANENT	EMERGENCY	
N/A				()						
				()						
				()						
				()						
				()						
				()						
TOTAL				()						

INTERCONNECTIONS WITH OTHER WATER SUPPLIERS

NAME OF OTHER SUPPLIER	AVERAGE DAILY WATER TRANSFERRED				MAXIMUM WATER TRANSFER CAPABILITY (GPD)		USE		Reason for Period of Non-Use (code) ⁶
	PURCHASE FROM		SALE TO		FROM	TO	PERMANENT	EMERGENCY	
101908	GPD	(Days)	GPD	(Days)					
PHILA. SUB-GREAT VALLEY 46552		()		()					
1 GLENN ACRES	0	()	56,200	(365)	0	300,000	X		
2 WATLACK ST	0	()	20,700	(365)	0	600,000	X		
TOTAL	0	()	76,900	(365)	0	900,000			

⁷ Average Daily Withdrawal of all surface and ground water sources, including purchased water if any, should be equal to the "Total Average Daily Water Use" indicated on page 2. (See instruction sheet).

⁸ If the Safe Yield is based on actual pumping tests of the well or spring indicate this by putting a "T" in parenthesis after the number (T).

RAW WATER STORAGE

NAME OF RAW WATER INTAKE DAMS, IMPOUNDING DAMS, RESERVOIRS OR STORAGE TANKS	LOCATION (Body of water if applicable)	STORAGE CAPACITY (Gallons)
INGRAM'S MILL 6MG POND	780 CREEK RD EAST BRADFORD	5 MG
" " 12 " "	"	12 MG
TOWNSHIP LINE RESERVOIR	CHESTER CREEK, WEST GOSHEN	190 MG
TOTAL		207 MG

TREATMENT SYSTEM IDENTIFICATION (Name, Location or Description)	FILTRATION PLANT CAPACITY (if applicable) Gallons Per Day	AVERAGE SYSTEM PRODUCTION Gallons Per Day	AVERAGE MONTHLY OPERATING COST PER DAY
INGRAMS Well	600,000	385,700	24
WHITE WELL FIELD	888,000	268,900	22

[illegible]

separate sheet for additional Treatment Systems.
separate sheet for "Other" Treatment Types.

D. # 1150098

DISTRIBUTION SYSTEM

the type, size and length of new pipe installed as an extension to your present system during this past report year? Length (feet) 12,000 ft

your enterprise have a pipe replacement program? Dia. (inches) 12"-8" YES ☒ NO ☐ If yes please indicate the type, size and length of replacement pipe installed during this past report year. Length (feet) 4,000 ft

the frequency of flushing the distribution system? Dia. (inches) 12", 8" ☐ per year.

work your hydrants during the report year? YES ☒ NO ☐ Frequency ALL

work your valves? YES ☒ NO ☐ Frequency 3

your enterprise have an active leak detection program? YES ☒ NO ☐

type of equipment or methods do you use for leak detection? SUDIC VISUAL, USE AGE, 1400 TOR

your enterprise have a cross connection control program? YES ☒ NO ☐

water pressure been inadequate in any part of the system? YES ☐ NO ☒ Explain.

SYSTEM DISTRIBUTION MAP

included in 1985 Annual Water Supply Report (due March 31, 1986) for all Community Water Systems. Community Water Systems permitted after Dec 31, 1985. If your enterprise has not submitted a complete system distribution map with the permit application need submit only a system distribution map update.

A detailed map of the distribution system showing, where available, pipe material and diameter, pressure, and direction of flow. The map should also show transmission lines, treatment facilities, storage facilities, and interconnections with other systems.

SYSTEM DISTRIBUTION MAP UPDATE

To be included annually by all Community Water Suppliers

update to the System Distribution Map, including as appropriate, description and plot plan of any water line extensions constructed during the report year. Size, type, and location of the extensions and results of pressure surveys. For public water supplies with detailed mapping systems, updated revision should be included.

REPORTS, SURVEYS, PLANS

copies of the following reports or updates for the report year.

1. Summary report of sanitary surveys.
2. Updates to the cross connection control program (if applicable).
3. Updates of the emergency response plan.

CENTRAL OFFICE

Do you have any comment regarding your water system or this report? NONE

CERTIFIED OPERATORS

NAME	PHONE Area Code - Number	CERTIFICATE NUMBER	TYPE	CLASS
ENCLOSED				

PERSON PREPARING THIS REPORT

Name	NEIL B. PHILLIPS	Title	MANAGER
Street & Number	990 FERN HILL RD	Home phone	(215) 696-8652
City	WEST CHESTER PA	Office phone	(215) 692-1800
Zip code	19380		
Signature	NEIL B. PHILLIPS		

PERSON TO CONTACT (between 8 am & 4 pm) REGARDING THIS REPORT

Name	SAKE	Title	
Street & Number		Home phone	()
City		Office phone	()
Zip code			

Commonwealth of Pennsylvania
Department of Environmental Resources
BUREAU OF COMMUNITY ENVIRONMENTAL CONTROL

ANNUAL WATER SUPPLY REPORT

417001/1150099/15963/03-6

TRUOD WATER CO
SAMPLE LINE
1 CHESTER, PA 19382

REPORT FOR CALENDAR YEAR JAN. 1 to DEC. 31, 19 89
(Fill in *previous* year)

RETURN BY MARCH 31: D.E.R. District Office or County
Health Department Contact for your County.
(See enclosed contact list)

D.# <u>1150099</u>	Name of District, Division or System	Population served <u>300</u>	County <u>Chester</u>	P U C
				YES
OWNERSHIP (Check one)				
<input type="checkbox"/> AUTHORITY / COMMISSION / DISTRICT <input type="checkbox"/> MUNICIPALITY <input type="checkbox"/> ASSOCIATION <input checked="" type="checkbox"/> INVESTOR				
Name of Water Supplier <u>WATKINS WATER COMPANY</u> AND NUMBER <u>Multiple Lines</u> ZIP CODE <u>19382</u>				
<input type="checkbox"/> FEDERAL <input type="checkbox"/> STATE <input type="checkbox"/> MOBILE				
<input type="checkbox"/> OTHER				

WATER USE FOR REPORT YEAR

WATER USE FOR REPORT YEAR - Including purchased water:	<u>5314378</u>	Gallons
AVERAGE DAILY WATER USE - Including purchased water (GPD):	<u>14559.94</u>	Gallons
water use for the year divided by 365 days)	<u>E 23'200</u>	Gallons
DAY WATER USE FOR REPORT YEAR:	<u>E 8175</u>	Gallons
100 DAY WATER USE FOR REPORT YEAR:		Gallons

SERVICE CURTAILED TO CUSTOMERS DURING REPORT YEAR

DATES CURTAILED		REASON FOR CURTAILMENT	NATURE OF RESTRICTIONS
FROM	TO		
		<u>NONE</u>	

METERING

What is the average age of existing meters? 3 years.

Are you currently installing meters at new connections? (N/A) YES NO, unmetered connections? (N/A) YES NO

Are there an active meter replacement program for your water system? ✓ YES NO

How many meters did you replace during the report year? NONE

CENTRAL OFFICE

TYPE	METERED CONNECTIONS		NONMETERED CONNECTIONS	
	NUMBER ³	WATER USE (GPD) ⁴	NUMBER ³	WATER USE (GPD) ⁴
DOMESTIC	75	14,559.94	NONE	(N/A)
COMMERCIAL	NONE			
INDUSTRIAL				
INSTITUTIONAL				
BULK SALES TO OTHER SUPPLIERS				
UNACCOUNTED FOR WATER ⁵				
OTHER				
TOTAL		14,559.94		

Is there a water conservation plumbing code in effect in your service area? YES _____ NO ☒

Did you provide water conservation information to your customers during the report year? YES ☒ NO ☐ FREQUENCY ONCE

PRESENT NUMBER OF CONNECTIONS SERVED

LIST PRESENT MUNICIPALITIES SERVED (Cities, Boroughs & Townships)	PRESENT NUMBER OF CONNECTIONS					PERCENT OF POPULATION SERVED
	Domestic ¹	Commercial	Industrial	Institutional	Other ²	
"CHATWOOD" IN WEST GOSHEN TWP	75	NONE	NONE	NONE	NONE	100%
TOTAL	75	NONE	NONE	NONE	NONE	100%

1 Is the number of "Domestic" connections listed above equal to the number of dwelling units served? (The number of connections does not equal the number of dwelling units in systems where several homes or apartments are served with one meter) _____ YES ☒ NO

2 Explain "Other" connections:

3 Total Number of Metered and Nonmetered Connections should equal "Present Number of connections served".

4 Total Daily Water Use (GPD) for Metered and Nonmetered Connections should equal "Average Daily Water Use" noted on Page 1.

⁵ Unaccounted For Water (Leakage, Fire, etc...) is the difference between the water produced at the source(s) and the water used by the customers.

DEPENDABLE DAILY OUTPUT OF THE WATER SYSTEM-SOURCES

WATER SOURCES (River, Creek, Stream, Pond or Reservoir)		Is source metered		Average Daily Withdrawal ⁷		Safe Yield or Minimum Production During Dry Years of Record (GPD) ⁸	Facilities which limit the Total Daily Output (eg., Raw Water Pumps, Treatment Works, Transmission Mains, Distribution Systems, etc...)		USE PERMANENT EMERGENCY Non-USE
		Yes	No	GPD	(Days)		TYPE	CAPACITY (GPD)	
(A)					()				
					()				
					()				
					()				
					()				
					()				
					()				
					()				
TOTAL					()				
WATER SOURCES (WELLS)		Is source metered		Average Daily Withdrawal ⁷		Safe Yield or Minimum Production During Dry Years of Record (GPD) ⁸	Facilities which limit the Total Daily Output (eg., Raw Water Pumps, Treatment Works, Transmission Mains, Distribution Systems, etc...)		USE PERMANENT EMERGENCY Non-USE
DEPTH (Feet)	DIAM. (Inches)	Yes	No	GPD	(Days)		TYPE	CAPACITY (GPD)	
(N/A)				14559.94368		(N/A)	NONE		
115'	6"-12"			BHON-UP WELLS					
				()					
				()					
				()					
				()					
				()					
				()					
				()					
				()					
				()					
				()					
				()					
TOTAL				14559.94368					

Water levels monitored in each well? YES ☒ NO ☐
 Appropriate code(s): See instruction for codes.

GROUNDWATER SOURCES (SPRINGS)	Is source metered		Average Daily Withdrawal ⁷		Safe Yield or Minimum Production During Dry Years of Record (GPD) ⁸	Facilities which limit the Total Daily Output (eg., Raw Water Pumps, Treatment Works, Transmission Mains, Distribution Systems, etc...)		USE		Reason for Period of Non-Use (code) ⁶
	Yes	No	GPD	(Days)		TYPE	CAPACITY (GPD)	PERMANENT	EMERGENCY	
(N/A)				()						
				()						
				()						
				()						
				()						
				()						
TOTAL				()						

INTERCONNECTIONS WITH OTHER WATER SUPPLIERS

NAME OF OTHER SUPPLIER	AVERAGE DAILY WATER TRANSFERRED				MAXIMUM WATER TRANSFER CAPABILITY (GPD)		USE	Reason for Period of Non-Use (code) ⁶
	PURCHASE FROM		SALE TO		FROM	TO	PERMANENT EMERGENCY	
	GPD	(Days)	GPD	(Days)				
(N/A)		()		()				
		()		()				
		()		()				
TOTAL		()		()				

⁷ Average Daily Withdrawal of all surface and ground water sources, including purchased water if any, should be equal to the "Total Average Daily Water Use" indicated on page 2. (See instruction sheet).

⁸ If the Safe Yield is based on actual pumping tests of the well or spring indicate this by putting a "T" in parenthesis after the number (T).

RAW WATER STORAGE

NAME OF RAW WATER INTAKE DAMS, IMPOUNDING DAMS, RESERVOIRS OR STORAGE TANKS	LOCATION (Body of water if applicable)	STORAGE CAPACITY (Gallons)
(N/A)		
TOTAL		

11200011

TREATMENT

TREATMENT SYSTEM IDENTIFICATION (Name, Location or Description)	FILTRATION PLANT CAPACITY (If applicable) Gallons Per Day	AVERAGE SYSTEM PRODUCTION Gallons Per Day	AVERAGE F OPERAT PER DAY
(N/A)			

TREATMENT TYPE	IDENTIFY CHEMICALS USED IN EACH TYPE OF TREATMENT PROCESS			
	SYSTEM A (As defined above)	SYSTEM B (As defined above)	SYSTEM C (As defined above)	SYSTEM D (As defined above)
	ALL (100%) PARTIAL (ESTIMATE %) NONE (%)	ALL (100%) PARTIAL (ESTIMATE %) NONE (%)	ALL (100%) PARTIAL (ESTIMATE %) NONE (%)	ALL (100%) PARTIAL (ESTIMATE %) NONE (%)
ion	1			Sodium Hypochlorite
ion				
ion				
ation				
ion				
n Control (ation)				
d Odor (d Carbon)				
g				
Manganese				
ation				

separate sheet for additional Treatment Systems.
separate sheet for "Other" Treatment Types.

NAME OF TREATED WATER RESERVOIR OR STORAGE TANK	IS FACILITY COVERED		USABLE STORAGE CAPACITY (GALLONS)
	YES	NO	
(N/A)			
TOTAL			

ADEQUACY OF SYSTEM

If yield, storage or treatment capacity is presently inadequate or will be inadequate within the next five years what is your schedule for improvements which will provide for adequate capacity? Explain below. Attach additional sheets if necessary.

(N/A)

I.D. # 1150099

DISTRIBUTION SYSTEM

p

the type, size and length of new pipe installed as an extension to your present system during this past report year? NONEyour enterprise have a pipe replacement program? YES NO ☒ if yes please indicate the type, size and length of new pipe installed during this past report year. Dia. (inches) _____ Length (feet) _____the frequency of flushing the distribution system? NONE per year. Dia. (inches) _____ Length (feet) _____do you work your hydrants during the report year? YES NO Frequency (N/A)
do you work your valves? YES NO Frequency (N/A)do your enterprise have an active leak detection program? YES ☒ NO _____
type of equipment or methods do you use for leak detection? VISUAL CHECK & WELL METER READINGS VS. HUMIDOWN
do your enterprise have a cross connection control program? YES NO ☒ METER RE
after pressure been inadequate in any part of the system? YES NO ☒
explain. _____

SYSTEM DISTRIBUTION MAP

included in 1985 Annual Water Supply Report (due March 31, 1986) for all Community Water Systems. Community Water Systems permitted after Dec
e submitted a complete system distribution map with the permit application need submit only a system distribution map update.detailed map of the distribution system showing, where available, pipe material and diameter, pressure, and direction of flow. The map should a
transmission lines, treatment facilities, storage facilities, and interconnections with other systems.

SYSTEM DISTRIBUTION MAP UPDATE

To be included annually by all Community Water Suppliers

update to the System Distribution Map, including as appropriate, description and plot plan of any water line extensions constructed during the
size, type, and location of the extensions and results of pressure surveys. For public water supplies with detailed mapping systems, updated revision s
ed: NO CHANGES IN 1989.

REPORTS, SURVEYS, PLANS

copies of the following reports or updates for the report year.

1. Summary report of sanitary surveys.
2. Updates to the cross connection control program (if applicable). (N/A)
3. Updates of the emergency response plan. (N/A)

DATE: _____

PWS I.D. # 1150099

COMMENTS

page 8

Do you have any comment regarding your water system or this report? NONE

CERTIFIED OPERATORS

NAME	PHONE Area Code - Number	CERTIFICATE NUMBER	TYPE	CLASS
THOMAS M. HORREX	(215) 696-2410	W-3419-	1	A
TINA MYERS	(215) 696-2410	W-5730	2	A

PERSON PREPARING THIS REPORT

Name	JOAN L. FULTON	Title	SECRETARY / TREASURER
Street & Number	11 MAPLE LANE	Home phone	(215) 431-1714
City	WEST CHESTER	Office phone	() SAME
Zip code	19382		
Signature	Joan L. Fulton		

PERSON TO CONTACT (between 8 am & 4 pm) REGARDING THIS REPORT

Name	SAME AS ABOVE	Title	
Street & Number		Home phone	()
City		Office phone	()
Zip code			

SHEET "A"
MUNICIPALITIES SERVED

DELAWARE COUNTY (30)

Aldan Borough
Clifton Heights Borough
Collingsdale Borough
Colwyn Borough
Darby Borough
East Lansdowne Borough
Eddystone Borough
Folcroft Borough
Glenolden Borough
Lansdowne Borough
Millbourne Borough
Morton Borough
Norwood Borough
Prospect Park Borough
Ridley Park Borough
Rutledge Borough
Sharon Hill Borough
Swarthmore Borough
Yeadon Borough
Darby Township
Edgmont Township
Haverford Township
Marple Township
Nether Providence Township
Newtown Township
Radnor Township
Ridley Township
Springfield Township
Tinicum Township
Upper Darby Township

MONTGOMERY COUNTY (16)

Bryn Athyn Borough
Conshohocken Borough
Jenkintown Borough
Narberth Borough
Rockledge Borough
West Conshohocken Borough
Abington Township
Cheltenham Township
Lower Merion Township
Lower Moreland Township
Plymouth Township
Springfield Township
Upper Dublin Township
Upper Merion Township
Upper Moreland Township
Whitemarsh Township

CHESTER COUNTY (15)

Birmingham Township
Charlestown Township
Easttown Township
East Bradford Township
East Goshen Township
East Whiteland Township
Pennsbury Township
Pocopson Township
Schuylkill Township
Thornbury Township
Tredyffrin Township
Westtown Township
West Goshen Township
West Whiteland Township
Willistown Township

SHEET "B"
GROUNDWATER SOURCES

	NAME	Depth	Dia.	1990 Avg. Daily Withdrawal (MGD)	Rated Capacity (MGD)
035	1. Aidenn Lair	502'	10"	0.220,000	0.36
034	2. Babb	476'	14"	0.980,000	1.00
032	3. Cabot	275'	8"	1.290,000	3.00
033	4. Cedar Grove	430'	10"	----	0.29
114	5. Chateau Drive	280'	8"	0.150,000	0.19
021	5. Chester Valley	197'	12"	0.900,000	1.44
133	7. Dilworth- town Oaks	400'	6"	0.050,000	0.06
112	8. Edgewood Chase	300'	8"	----	0.13
023	9. Enfield	350'	10"	0.190,000	0.30
107	10. Fire- thorn	222'	8"	0.08,000	0.09
024	11. Flour- town	300'	12"	1.270,000	1.44
090	12. Goshen Downs	260'	6"	----	0.09
108	13. Grand Oak	134'	8"	0.220,000	0.21
037	14. Great Valley	340'	8"	0.190,000	0.29
022	15. Hall Road	460'	12"	1.650,000	2.00

Sheet "B"
Groundwater Sources
Page 2

<u>NAME</u>	<u>Depth</u>	<u>Flow</u>	<u>1990 Avg. Daily Withdrawal (MGD)</u>	<u>Rated Capacity (MGD)</u>
094 16. Highland Glen	360'	6"	0.100,000	0.14
095 17. Hollow Run	237'	6"	0.220,000	0.24
117-18. Hunt Country	179'-400'	6"	0.290,000	0.32
036 19. Karrs Lane	590'	14"	1.720,000	2.00
125-20. Mt. Brad- ford	149'	8"	0.030,000	0.06
117-21. New Kent	340'	8"	0.120,000	0.20
27-22. North Hills	300'	12"	0.740,000	0.70
108-23. Oak- bourne	126'	8"	0.060,000	0.07
130 24. Oreland	436'	12"	1.110,000	1.44
110-25. Penn- wood	423'	8"	0.050,000	0.09
025-26. Plymouth #1	600'	8"	0.110,000	0.20
028-27. Plymouth #2	463'	10"	0.100,000	0.50
139-28. Pocop- son	240'	6"	0.020,000	0.10
122-29. Pomona Park	190'	8"	0.040,000	0.06

Sheet "B"
Groundwater Sources
Page 3

NAME	Depth	Dia.	1990 Avg. Daily Withdrawal (MGD)	Rated Capacity (MGD)
082-30. Radley Mews	495'	8"	0.140,000	0.29
129-31. Radley Run	398'	8"	0.070,000	0.19
026 32. Thomas Road	504'	12"	0.070,000	1.00
027 33. Tredy- ffrin	316'	12"	1.000,000	2.00
031 34. Upper Merion	502'	12"	0.540,000	1.44
113-35. Westtown Park	100'	8"	----- 13.72 MGD	0.03 21.96 MGD

A. All sources are permanent, metered facilities, and are limited to the rated capacities given.

B. Cedar Grove Well #5 is temporarily out of service due to quality problems.

SHEET "C"
INTERCONNECTIONS WITH OTHER UTILITIES
1972

Name of Utility	Max. Water Transfer Capability (gpd)		Actual Water Transfer (gpd)	
	Purchase	Sale	Purchase	Sale
101236 Bucks County Water & Sewer Authority 10000	7,000,000	N/A	3,539,726	25,449
101539 Chester Water Auth. 23001	6,000,000		3,013,699	----
101412 Borough of Malvern 15938			-----	77,672-825-00
PA American Water Co. (did not connect)			20,993	26,090
101988 Borough of Ambler 46811			-----	15,---
101915 North Wales Water Auth. 96815			-----	1,238,776
919 Hatboro Water Auth. 46812			-----	24,582-28,582
11237 Warminster Mun. Auth. 09507			-----	45,954-22,441
101540 Media Water Dept. 23826			-----	126,184
01385 West Chester Auth. 15003 1,000 000			90,411	-----
01260 Upper Southampton 09447			-----	1,163-710-10
TOTALS	14,000,000	N/A	6,664,829	1,565,870

APPENDIX E

CONSERVATION PRACTICES AND PLUMBING CODE

MODEL WATER CONSERVATION ORDINANCE

The ordinance is a major step in the logical development of a comprehensive water conservation program. The adoption of a water conserving ordinance assures that practices established by a water conservation program will be adhered to by providing the legal mechanism necessary to administer the program.

Review of ordinances prepared by communities that have implemented water conservation programs has enabled the preparation of a model water conserving ordinance. This model ordinance has been written in a manner that facilitates adaptation to individual municipal situations. Plumbing and building codes must be reviewed in conjunction with this ordinance to ensure that there is no conflict and that the plumbing and building codes are revised to reflect the standards proposed by this ordinance.

The success of an ordinance such as this is largely a result of an effective public education and enforcement program. An effective public education program emphasizes the savings that may be realized by homeowners who install the prescribed water-saving hardware. For example, the average four person family, where each family member takes a five-minute shower every day, uses 34,310 gallons of water annually, of which 60% is heated. A low flow (2 gal./min.) showerhead (costing less than \$10.00) can save this family 17,034 gallons of water per year - \$45.00 a year in water or sewage costs; \$170.00 in fuel costs in homes heated electrically and \$85.00 in gas-heated homes (based on average costs of water, sewage treatment and fuel). If public institutions such as a high school with 1,000 students invested between \$1,000 and \$3,000 in water-saving fixtures, annual savings of from \$10,000 to \$16,000 could result.

Municipalities can realize reductions in costs to treat and pump potable and wastewater by implementing an effective water conservation program. The city of Elmhurst, Illinois was able to reduce flows to the sewage treatment plant by 8% and extend water supply service capabilities by 400,000 gal./day. A successful water conservation program would thus allow expansion of the sewage collection system to serve new construction and make unnecessary a planned new raw water source and associated treatment facilities.

Educating the public includes efforts to inform manufacturers and local plumbing fixture suppliers about the new code. Input from both plumbing fixture suppliers and plumbing contractors in the development of the code will insure workability and successful implementation.

Care must be taken to insure that a conflict does not result between this ordinance and existing building and/or plumbing code restrictions.

Additional information on the American National Standards Institute (ANSI) requirements for vitreous china plumbing fixtures and finished rough brass plumbing fixture fittings, and on the American Society of Sanitary Engineers (ASSE) performance requirements for pressure reducing valves as referred to in articles of this model ordinance can be obtained upon request from the Water Conservation/Technical Assistance Section of DER.

Ordinance # _____
of Municipality
Water Conservation

WHEREAS, the Board of Supervisors of (municipality) hereby finds and determines that in order to conserve and protect its water supply for the greatest public benefit, it is necessary to reduce the demand for water in the manner hereinafter set forth, and

WHEREAS, the purpose of this ordinance is to insure the continued availability and service of water to (municipality) residents, now therefore

BE IT ORDAINED BY THE BOARD OF SUPERVISORS OF (MUNICIPALITY) AS FOLLOWS:

Section One:

No water shall be provided for internal or external use to any residential, commercial, industrial, agricultural, recreational, governmental or public building or structure of any kind which is constructed or remodeled, and in which plumbing, water piping or water fixtures are to be installed, extended or altered in any way, and for which construction a permit is required to be obtained from (municipality) (or would be required but for an exemption from a permit requirement for public or governmental agencies) unless the new, extended or altered plumbing, water piping and other water using fixtures therein conform to the requirements and standards of Section Four of this Ordinance. The provisions of this Ordinance shall apply to any such building or structure for which such a building permit is issued, or would otherwise be required to be issued for such an exemption, on or after (Date of Adoption).

Section Two: Waste of Water Discharged

Customers shall be encouraged not to permit any water furnished by (water purveyor) to run to waste in any gutter or other impervious surface.

Section Three:

Each resident or property owner of (municipality) is urged to install fixtures which will reduce the quantity of water required to flush toilets and to reduce the flow rates of showers and faucets.

Section Four:

Department of Environmental Resources' Recommended Specifications¹

Article 1 - Water closets operated by flush tanks

The water consumption of water closets operated by flush tanks shall not exceed an average of 3.5 gallons per flush cycle over a range of test pressures from 20 to 80 psig or a maximum of 4.0 gallons per flush cycle at any one test pressure. The fixture shall perform in accordance with the flushing test requirements cited in the ANSI 112.19.2 Vitreous China Plumbing Fixtures standard.

Article 2 - Water Closets and urinals operated by flushometers

1. Water close water consumption shall not exceed an average of 3.0 gallons per flush cycle over a range of test pressures from 20 to 80 psig or a maximum of 3.5 gallons per flush cycle at any one test pressure. The flushometer shall be adjusted according to manufacturer's specifications. The fixture shall perform in accordance with the flushing test requirements cited in the ANSI 112.19.2 Vitreous China Plumbing Fixtures standard.
2. Urinal water consumption shall not exceed an average of 1.0 gallons per flush cycle over a range of test pressures from 20 to 80 psig or a maximum of 1.5 gallons per flush cycle at any one test pressure. The flushometer shall be adjusted according to manufacturer's specifications. The fixture shall perform in accordance with the flushing test requirements cited in the ANSI 112.9.2 Vitreous China Plumbing Fixtures standard.

Article 3 - Showerheads

Showerhead discharge rates shall not exceed 2.75 gallons of water per minute over a range of test pressure from 20 to 80 psig. The fixture shall perform in accordance with the test requirements cited in the ANSI 112.19.1 Finished Rough Brass Plumbing Fixture Fittings standard.

Article 4 - Sink faucets

1. Kitchen sink faucet discharge rates shall not exceed 2.75 gallons of water per minute over a range of test pressure form 20 to 80 psig. The fixture shall perform in accordance with the test requirements cited in the ANSI 112.18.1 Finished Rough Brass Plumbing Fixture Fittings standard.

2. Residential lavatory sink faucet discharge rates shall not exceed 2.75 gallons of water per minute over a range of test pressures from 20 to 80 psig. The fixture shall perform in accordance with the test requirements cited in the ANSI 112.18.1 Finished Rough Brass Plumbing Fixture Fittings standard.
3. Non-residential lavatory faucets shall be either self-closing or metering faucets as described below:
 - a. Self-closing faucets shall not exceed an average discharge rate of 0.5 gpm between the pressures of 20 and 80 psig when tested in accordance with the Discharge test procedure cited in ANSI A112.18.1, Finished and Rough Brass Plumbing Fixture Fittings.
 - b. Metering Faucets shall be field adjustable and set so that the discharge quantity shall no exceed 0.5 gallons of water per cycle.

Article 5 - Blowout toilets and urinals

Replacement of blowout toilet and urinal fixtures with like type fixtures may be granted by local officials upon request where adequate justification of special need is provided.

Article 6 - Pressure reducing valve

Where the service water pressure to a building is expected to exceed 60 psi a water pressure reducing valve with strainer shall be installed just downstream of the building's main valve, so as to be accessible. The valve shall provide for pressure adjustment within the range of 50 to 60 psi. The valve shall conform to the requirements of product standard ASSE 1003. Exemptions to this article are service lines to still cocks, outside hydrants, and main supply risers to buildings where pressure from the mains does not exceed 60 psi at the fixture branches or at individual fixtures.

Article 7

Any person(s) may apply to the (municipality) for an exception to the terms of this Ordinance, which exception may be granted in the discretion of the Board of Supervisors, upon proof that some other device, system or procedure will save as much or more water as those set forth herein, or that those set forth herein cannot be complied with, without undue hardship.

Article 8

The Board of Supervisors may, from time-to-time, modify, add to, or remove from the standards and restrictions herein.

Article 9

It shall be a misdemeanor for nay person to use or apply water received from (municipality) contrary to or in violation of the restriction herein, and upon conviction thereof such person shall be punished by being imprisoned in the County jail for not more than 30 days or by fine of not more than three hundred dollars (\$300.00), or by both such fine and imprisonment.

ADOPTED THIS _____ day of _____, 19____.

SMALL MEASURES OFFER BIG SAVING ON WATER

SMALL MEASURES OFFER BIG SAVING ON WATER

Here are some measures consumers can use to cut down on water use:

* **Fix leaky faucets or pipes immediately.**

Even a small leak can waste 20 or more gallons of water a day. A steady stream can waste 70 or more gallons per day.

* **Let water run from faucets only when the water is being used.**

One typical habit is getting a drink of water and letting the water run until the water is cold. Keeping a cold bottle of water in the refrigerator works just as well.

Doing dishes is another chore in which many people leave the water running the entire time. If you have two basins or sinks, fill one with soapy water and one with rinse water. If you have one basin or sink, put washed dishes in a dish rack and rinse them with a sprayer.

Many people also let water run while brushing their teeth. Using water only in the beginning and end can cut down.

The same is true with shaving. A better idea is to partially fill the basin and rinse the razor with standing water.

* **Run appliances only with full loads.**

A dishwasher uses the same amount of water whether you're washing a full load or a single spoon. Try to wait until the dishwasher is mostly full before running it.

The same holds true for washing machines/

When buying new appliances, look for ones that have water-saving features that allow you to use less water for smaller loads.

* **Take shorter showers.**

Another saver is to turn off the water while soaping up. A switch can be added that allows an easy turn-off at the showerhead without having to worry about readjusting the hot and cold faucets.

* **Use strategies to cut down on lawn and garden waterings.**

A soaker hose - that flat hose with little holes in it - delivers directly into the ground almost all water used. Standard hoses and sprinklers lose more to evaporation.

Also, rather than watering frequently for short periods, give one or two good soakings per week. Light sprinklings encourage evaporation and also keep plant and grass roots close to the surface.

If you use a sprinkler, regulate it so the water is not falling or running onto paved surfaces.

Watering during the coolest parts of the day cuts down on evaporation.

Mulching plants and trees holds in moisture so they require less watering.

SMALL MEASURES OFFER BIG SAVING ON WATER, con't.

* **Don't use your hose as a broom.**

Many consumers find it easier to use a hose to clean their sidewalks and driveways, but a broom will do a good job, too.

Also, many people who wash their cars at home keep the hose running the whole time rather than rinsing once, filling a bucket with soapy water and then rinsing in the end.

Having a shutoff switch at the nozzle makes turning the hose off more convenient.

* **Don't use the toilet as a trash can.**

It's wasteful to use 5 or more gallons of water to get rid of a cigarette butt or a tissue.

Source: George Weigel, The Patriot News, Harrisburg PA, August 8, 1986.

DAILY WATER USE IN HOMES

ACTIVITY	WATER USE IN GALLONS
Toilet Flushing	100
Shower and Bathing	80
Laundry	35
Dishwashing	15
Cooking, Drinking	12
Bathroom Sink	8
Utility Sink	5
TOTAL DAILY USE	255

Source: U.S. Environmental Protection Agency.

SUMMATION OF CORRECTIVE ON-LOT DISPOSAL SYSTEM MEASURES

SUMMATION OF CORRECTIVE ON-LOT DISPOSAL SYSTEM MEASURES

Modification to existing toilet which can reduce the amount of water used per flush by one to two and one-half gallons:

- Tank inserts
- Flush adapters
- Valve assemblies

Specifically designed and constructed water conservation toilets utilizing approximately two gallons or less per flush.

Conversion kits are available to replace existing toilet tanks with a water-air pressure type flush utilizing approximately 2.5 gallons per flush.

Water-saving showerheads.

Spigot flow controls.

Suds-saver washing machines.

Greywater recycle system.

Composting toilets.

Regular pumping of septic tank.

Installation of a new standard type on-lot disposal system.

Installation of a second drainage field and a distribution box which would permit alternating operation of drainage fields.

Hydrogen peroxide treatment to provide rejuvenation of clogged drainage fields.

Aerobic septic tank unit to replace septic tank which would provide more effective treatment and, thereby, possibly reducing the effective size the associated drainage field.

Additional information can be obtained from the publication WATER SAVING PLUMBING FIXTURES, Commonwealth of Pennsylvania, Department of Environmental, Office of Resources Management and prepared by the Water Conservation Technical Assistance Program.

APPENDIX F

**ANALYSIS OF PUMPING STATION FLOWS
CALCULATIONS & CORRESPONDING MAP**

Pumping Station Analysis Worksheet

Montgomery Ave.	Design =	216,000 (W.G. Only)
	Existing =	65,000
	Yr. 2000 =	68,000
Y built up and a relatively area.		
new EDU's by 2000	=	3,000 gpd additional
Ultimate =		74,000
er undeveloped areas flow into		
Say 20 new EDU's to allow for		
ement development	=	6,000
inity Drive	Design =	259,200
House Ct.	Existing =	28,500 (W.G. only) ;
	Yr. 2000 =	31,500
Y built up and a relatively area. Say 10 new EDU's by		
Yr. 2000 =		3,000 gpd additional
Ultimate =		40,000
new EDU's to allow for		
ement development	=	3,000 +Area V = 5,500
ruce Avenue	Design =	1,008,000 (W.G. Only
	Existing =	222,300 + growth PS2)
	Yr. 2000 =	228,300
new EDU's by 2000 = 3,600 gpd		
onal, plus 3,000 gpd		
onal from PS2	=	6,000
Ultimate =		246,675
new EDU's to allow for		
ement development,		
+ 3,000 from PS2)	=	6,000
f area W = 6,875 + PS2 area		
500)	=	12,375
andoned		
andoned		
ilis lane	Design =	1,450,000
	Existing =	369,100 (W.G. only)
	Yr. 2000 =	372,100
new EDU's by 2000	=	3,000 gpd additional
Ultimate =		395,157
new EDU's to allow for		
ement development	=	3,000
=9,167; R=4,084; S=6,806	=	20,000
andoned		
andoned		
andoned		

PS10 Woodcrest	Design	=	144,000 (W.G. Only)
	Existing	=	9,900
	Yr. 2000	=	11,400
Already built out in a small area			
Say 8 new EDU's by 2000		=	1,500 gpd additional
	Ultimate	=	25,400
Say 10 new EDU's to allow for replacement development		=	3,000
1/2 Area P		=	11,000

PS11 Taylor Run	Design	=	1,440,000
	Existing	=	630,000 (W.G. only)
Greystone, 35			10,500
North Hills, 120			36,000
Kirby Woods, 43			12,900
Caswallen, 120			36,000
Della Vista, 30			9,000
Marino, 15			4,500
Cheshire (par.)			
44 comp of 82			13,200
Wilnor Est., 14			4,200
Great Oaks, 23			6,900
Clover Ridge, 4			1,200
Woodstock, 15			4,500
Clover Lea, 47			14,100
Addt. 75			22,500
WWPS			461,156
Gary Bach, 10			2,000
<u>Total 595</u>			639,656 @ 300 gpd or 624,781 @ 275
	Yr. 2000	=	767,760
Cheshire, 38			11,400
Addtl. EDUs, 30			9,000
WWPS1			30,800
WWPS2			8,000
Develop. #48			5,300
Develop. #84			11,000
WWPS from WW			30,000
Country Club			28,000
Goshen Commons			4,060
Subtotal			37,760
	Ultimate	=	1,569,839
A to WWPS			39,015
F to WWPS			41,250
B			14,773
C			19,708
D			41,708
E			355,292
L			6,875
M			40,838
N			87,120
WW Additional allocated capacity	=		250,000
Capped sewers 5,500	=		802,079

Washington Street	Design =	5,472,000 (+ gravity to
	Existing =	793,000 PS12, flow from
	Yr. 2000 =	1,077,110 WWPS, PS11, 15, 16)
	PS11 increase =	137,760
PS16 Proposed		
(See map code Purple):		
Brandywine Lakes	1,000	
Hamilton Woods	15,125	
PS16 Portions to be completed (See map code Green):		
Greenhill	11,275	
Knollwood	3,575	
Brookfield I	7,975	
Brookfield II	3,850	
Capelli/Chandler	6,325	
Shannon	76,725	
W.G. Buss. Park	2,000	
PS16 On-lot		
or Capped Sewers		
Howard Rd, 60 EDUs	16,500	
Vishneski Ind. Park	2,000	
Subtotal	146,350	284,110
	Total	=
	Ultimate	2,234,761
PS 11 + WW additional Capacity		802,079
N	176,963	
O	12,251	
K	40,838	
E	41,250	
I	51,728	
C	32,542	
Subtotal	335,572	
	Total	= 1,157,351
Westtown Way	Design =	3,888,000 (E.G. + West
	Existing =	1,255,000 + SE parts of
	Yr. 2000 =	1,339,600 W.G.)
Gravity to 13, Wildflower 2	1,100	
PS10 Flows	1,500	
E.G. Flows	22,000	
Subtotal	84,600	2,033,449
	Ultimate	=
Gravity to PS13:		
3B	34,375	
3C	18,333	
Area 4	21,083	
J	31,167	
P (PS10)	22,000	
U	2,723	
Subtotal	129,681	
East Goshen Addtl. Capacity	=	556,000
T (Gravity, PS13)	= 5,168	693,849
	Total	=

PS14 Abandoned

PS15 Abandoned

PS16 Northeast-Fernhill	Design	=	1,100,000 (W.G. only
	Existing	=	192,000 + gravity)
	Yr. 2000	=	336,350

Part Completed

(See map code Green):

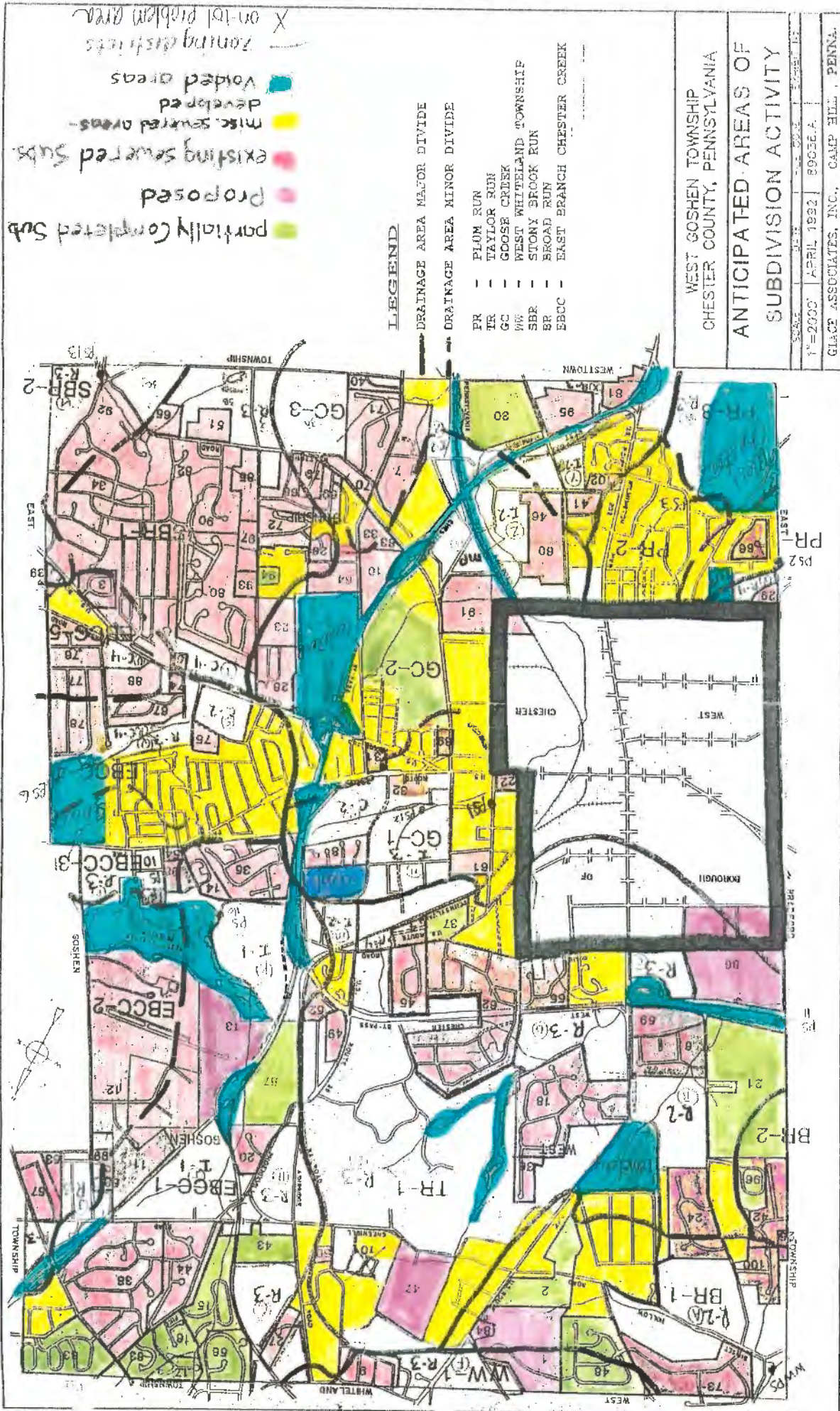
Greenhill	11,275
Brookfield I	7,975
Brookfield II	3,850
Knollwood	3,575
Capelli/Chandler	6,325
Shannon	76,725
W.G. Buss. Park	2,000

Proposed

(See map code Purple):

Hamilton Woods	15,125
Brandywine Lakes	1,000
On lot to Sewer:	
60 EDUs	<u>16,500</u>
Subtotal	144,350

	Ultimate	=	502,708
PS 11 + WW Addtl. Capacity	=		802,079
K	40,838		
H	41,250		
I	31,728		
G	<u>32,542</u>		
Total	=		166,358



APPENDIX G

PENNVEST FUNDING

(c) The Authority will establish the Water Pollution Control Revolving Fund to receive funds under section 603 of the Water Quality Act of 1987 (33 U.S.C.A. § 1383).

§963.7. Application procedure.

(a) A potential applicant shall first participate in a planning consultation with the Department's Project Engineer serving the potential applicant's county. The purpose of the planning consultation is to:

- (1) Discuss relevant water supply or wastewater abatement needs.
- (2) Perform a prefeasibility assessment to identify and screen alternative solutions, including opportunities for consolidating water systems and other institutional alternatives.
- (3) Examine alternative funding sources.
- (4) Discuss procedures and information needed to complete the application and implement the project.

(b) The Department's Project Engineer will follow up the planning consultation with a report sent to the potential applicant describing the meeting contents and decisions reached.

(c) A wastewater project shall meet the planning requirements described in Chapter 71 (relating to administration of sewage facilities program). If the potential applicant is a municipality or municipal authority, it shall prepare or update its Official Sewage Plan under the Pennsylvania Sewage Facilities Act (35 P. S. §§ 750.1—750.20). If the potential applicant is a private entity, it shall ensure that its facility is included in the Official Sewage Plan prepared by the municipality in which its wastewater facility is located.

(d) An application shall be made on forms approved by the Authority and shall be addressed to the Authority.

(e) A complete application shall be received by the Authority administrative staff by the application cutoff date associated with each regular meeting. The application cutoff dates will be established and published at the same time as the regular meeting schedule for the fiscal or calendar year is established, under the Sunshine Act (65 P. S. §§ 271—286). The application cutoff date can be waived by the Board if the project addresses an emergency situation which threatens public health or safety, or the project makes possible an economic development project resulting in retention of existing jobs or the creation of new jobs where the opportunity may be lost without prompt Authority action. The Authority will seek independent confirmation from the Department or the Pennsylvania Emergency Management Agency that a public health or safety emergency does exist, or will seek independent confirmation from the Department of Commerce that an economic development opportunity will be lost without Board action.

(f) An application received by the Authority will be reviewed by the administrative staff for completeness and eligibility. An application shall include copies of the permits necessary for the construction and operation of the proposed project which can be obtained prior to construction. For projects which include acquisition, permit applications are not required until the applicant has the legal authority to submit those applications. Construction may not begin until the required permits are in place.

(g) An application determined to be eligible and complete by the administrative staff will be logged in the order of final receipt by the Authority, and will be dated and forwarded to the Department and the Department of Commerce for review.

(h) If the administrative staff determines an application is ineligible or incomplete, it will provide the applicant with a written explanation of the reasons for the determination.

(i) If an application is determined to be ineligible by the administrative staff, the Board will review the decision if the applicant files a written request with the Authority within 30 days of receipt of the determination.

(j) The Department and the Department of Commerce will provide the administrative staff with a written evaluation of each application. The evaluation by the Department of Commerce will address the economic development criterion while the Department evaluation will address other criteria contained in §§ 963.8 and 963.9 (relating to wastewater project evaluation criteria; and water project evaluation criteria).

(k) The administrative staff will provide to the Authority prior to each regularly scheduled Board meeting a written evaluation of each application based upon the criteria in section 10 of the act (35 P. S. § 751-10), including a recommendation to accept, deny or defer. The administrative staff shall provide a recommendation on the amount, types and terms of the financial assistance.

(l) The administrative staff shall provide notice to each applicant, in writing, advising it of the meeting at which its application will be considered.

(m) Following each Board meeting, applicants will be notified in writing of the action taken on their applications.

(n) The fundamental objectives that will guide project selection are long-term improvements to public health, public safety and the environment. Performance on other criteria will also influence project evaluations and selection. Sections 963.8 and 963.9 contain the general criteria that will be used in evaluating projects, and specific examples of performance in each of these criteria.

Cross References

This section cited in 25 Pa. Code § 963.13 (relating to advance funding).

§963.8. Wastewater project evaluation criteria.

The following are wastewater project evaluation criteria:

- (1) *Public health and safety.*
 - (i) Direct human impact due to onlot system malfunctions or inadequately treated sewage.
 - (ii) Severity of individual or public water supply contamination.
 - (iii) Degree of impact on public bathing areas.
 - (iv) Severity of safety hazards from deteriorated facilities.
- (2) *Environmental impact.*
 - (i) Damage to fish and aquatic life.
 - (ii) Loss of boating and recreation opportunity.
 - (iii) Impact on industrial water supply uses.
 - (iv) Impact on crop irrigation.
 - (v) Degradation of streams used for stock watering.
 - (vi) Reduction in pollution required in section 117 of the Water Quality Act of 1987 (33 U.S.C.A. § 1267), known as the Chesapeake Bay Agreements.
- (3) *Economic development.*
 - (i) Development activity and job creation/retention resulting directly or indirectly from the project.
 - (ii) Opportunity to use other State programs, such as the Business Infrastructure Development, Site Development and Community Facilities programs, to fund the project.
 - (iii) Degree of local distress in the county where the project is located.
- (4) *Compliance.*
 - (i) Enforcement status of the project.
 - (ii) Existence of overload conditions.
- (5) *Adequacy, efficiency and social impact.*
 - (i) Extent that reorganization or consolidation of facilities will be accomplished.
 - (ii) Population directly affected.
 - (iii) Median household income in comparison to Statewide median.
 - (iv) The ongoing ability of the applicant to operate and maintain the project facilities and system.
 - (v) An increase in the reliability of service.
 - (vi) Efficiency of the proposed solution when compared with other alternatives.

Cross References

This section cited in 25 Pa. Code § 963.7 (relating to application procedure); and 25 Pa. Code § 963.11 (relating to eligible costs).

APPENDIX H

STATE REVOLVING FUND

REQUIREMENTS TO QUALIFY FOR FINANCIAL ASSISTANCE THROUGH THE
STATE REVOLVING FUND (SRF)

PLANNING (Approved Act 537 Plan is required)

1. Infiltration/Inflow Analysis (See EPA Attachment)
2. Innovative and Alternative Technologies (See Attachment)
3. Open Space and Recreational Opportunities (See Attachment)
4. Alternatives Evaluation (See Attachment)
5. Environmental Assessment (See Attachment)
6. Public Participation

DESIGN AND IMPLEMENTATION (All permits must be issued)

7. Value Engineering (cost of treatment works greater than \$5 million)
8. User Charge System
9. Sewer Use Ordinance
10. Financial Capability
11. Procurement Regulations (compliance with Davis-Bacon Act)
12. MBE/WBE/SBE Requirements (compliance with Affirmative Action Steps)
13. Project Performance Certification

FILE - SRF_REQ wpd (03/15/91)

EPA

Infiltration/Inflow

I/I Analysis and Project Certification



reduction

As part of facilities planning for municipal wastewater treatment facilities, the grantee must demonstrate that contributing sewer systems are not, and will not be, subject to excessive infiltration or inflow. This brochure informs grantees and facility planners on how to determine whether excessive I/I exists, and how to certify that excessive I/I has been sufficiently reduced through sewer rehabilitation.

"Infiltration" occurs when groundwater enters a sewer system through broken pipes, defective pipe joints, or illegal connections of foundation drains. "Inflow" is surface runoff that enters a sewer system through manhole covers, exposed broken pipe and defective pipe joints, cross connections between storm sewers and sanitary sewers, and illegal connections of roof leaders, cellar drains, yard drains, or catch basins.

Virtually every sewer system will have some infiltration or inflow. Guidelines have been developed to help determine what amount of infiltration and inflow is considered "excessive." To make this determination, infiltration and inflow must be evaluated separately as discussed below.

Determination of Non-Excessive Infiltration

Based on Needs Survey data from 270 Standard Metropolitan Statistical Area Cities, the national average for dry weather flow is 120 gallons per capita per day (gpcd). This includes domestic wastewater flow, infiltration and nominal industrial and commercial flows. This average dry weather flow should be used as an indicator to determine the limit of non-excessive infiltration. If the average daily flow per capita (excluding major industrial and commercial flows greater than 50,000 gpd each) is less than 120 gpcd (i.e., a 7-14 day average measured during periods of seasonal high groundwater), the amount of infiltration is considered non-excessive.

The 120 gpcd flow rate guideline has been incorporated into EPA's final Construction Grant Regulations. These regulations provide that no further infiltration analysis work is required if the 120 gpcd guideline is not exceeded. If the average daily dry weather flow (DWF) exceeds 120 gpcd, the grantee may request special approval from the EPA Regional Administrator to proceed with project design without further infiltration studies. To receive such approval, the grantee must demonstrate that the increased flows due to infiltration can be cost-effectively treated, and that sufficient funding is available to pay for the local share of project construction and operating costs. In such cases, the incremental cost of treatment capacity over and above 120 gpcd is not eligible for EPA construction grant funding.

The grantee's basic options regarding determination of non-excessive infiltration are listed below:

If Average DWF \leq 120 gpcd:*

- Grantee may proceed with project design and construction without further infiltration study.
- Grantee may investigate rehabilitation alternatives for specific sections of sewer system where excessive infiltration has been documented.

If Average DWF marginally exceeds 120 gpcd:*

- Grantee may request special approval from EPA Regional Administrator to proceed with the project without further study of infiltration correction alternatives.
- Grantee must demonstrate that project is cost-effective (i.e., that treating increased flows due to infiltration is less costly than sewer rehabilitation).

- Grantee must demonstrate that sufficient funds are available for the local share of project cost, including capital and operating costs.
- The treatment facility must be sized to treat the total flow including infiltration; however, the incremental cost of treatment capacity above 120 gpcd is not eligible for EPA construction grant funding.

If Average DWF \geq 120 gpcd, and Special RA Approval is not granted:*

- Further studies must be conducted to quantify excessive infiltration and evaluate alternative corrective measures.
- Based on results of these studies, the most cost-effective sewer rehabilitation program is selected, and the treatment plant is sized to handle the infiltration that cannot be cost-effectively removed.
- Upon approval of the proposed rehabilitation program by EPA, grantee may proceed with project design and construction. Total project cost (including sewer rehabilitation costs) is eligible for construction grant funding.

*Highest average daily flow recorded over a 7-14 period during a period of seasonal high groundwater

Determination of Non-Excessive Inflow

A statistical analysis of data from Sewer System Evaluation Survey (SSES) studies representing more than 45 different sewer systems (i.e., separate sanitary sewer systems) indicated a strong correlation between inflow rate and service area population. Based on these data, the average wet weather flow (WWF) after removal of excessive inflow (i.e., that which can be cost-effectively removed) is 275 gpcd. This flow rate should be used as an indicator of non-excessive inflow.

If the average daily flow during periods of significant rainfall (i.e., any storm event that creates surface ponding and surface runoff; this can be related to a minimum rainfall amount for a particular geographic area) does not exceed 275 gpcd, the amount of inflow is considered non-excessive. This calculation should exclude major commercial and industrial flows (greater than 50,000 gpd each). If wet weather flows do not exceed 275 gpcd, the grantee may proceed with project design and construction without further study of inflow correction alternatives. However, if the treatment plant experiences hydraulic overloads during storm events, further study is required regardless of the wet weather flow (i.e., even in cases where WWF is less than 275 gpcd.)

The determination of non-excessive inflow is made as follows:

If WWF \leq 275 gpcd, and the treatment plant does not experience hydraulic overloads during storm events:*

- Grantee may proceed with project design and construction without further inflow studies
- Grantee may investigate rehabilitation alternatives for specific sections of the sewer system where excessive inflow has been documented.

If $WWF^* > 275$ gpcd, or the treatment plant experiences hydraulic overloads during storm events:

- Further studies must be conducted to quantify excessive inflow and evaluate alternative corrective measures.
- Based on results of these studies, the most cost-effective sewer rehabilitation program is selected, and the treatment plant is sized to handle the inflow that cannot be cost-effectively removed.
- Upon approval of the proposed rehabilitation program by EPA, the grantee may proceed with project design and construction. Total project cost (including sewer rehabilitation cost) is eligible for construction grant funding.

*Highest daily flow recorded during a storm event.

Cost-
effectiveness
analysis

Before obtaining a grant for sewer system rehabilitation, the grantee must determine the amount of infiltration and inflow that can be cost-effectively removed. This is essentially an estimate of the point at which the cost savings (i.e., reduction in transport and treatment cost less the cost of the rehabilitation program) is maximized. Generally, the planned I/I reduction (i.e., the target sought in a sewer rehabilitation project) is determined on the basis of a cost-effectiveness analysis. Figure 1 illustrates how the planned I/I reduction target is established from cost curves developed in the cost-effectiveness analysis. A separate cost-effectiveness analysis should be done for infiltration alternatives and for inflow alternatives.

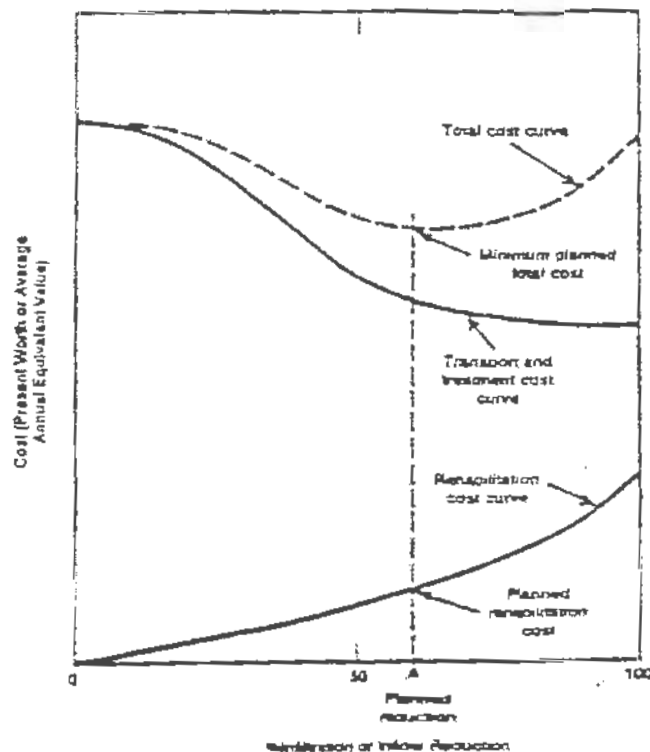


Figure 1 Cost-Effectiveness Analysis

Certification of I/I Rehabilitation Performance

At the end of the one-year performance period (i.e., one year after initiation of sewer system operation), the grantees must certify that the rehabilitation project has achieved an acceptable level of I/I reduction. Ideally, this means that the planned I/I reduction target is achieved at a cost not exceeding that projected in the cost-effectiveness analysis. However, past experience has shown that it is difficult to measure the effectiveness of an I/I rehabilitation program simply by comparing flow data before and after sewer rehabilitation.

A sewer rehabilitation project will be considered certifiable as long as the project is cost-effective (i.e. transport and treatment cost savings exceed rehabilitation costs). *Figure 2* illustrates how to determine the minimum acceptable I/I reduction using the transport and treatment cost curve from the cost-effectiveness analysis. A separate determination should be made for infiltration and for inflow, consistent with the original cost-effectiveness analysis.

The actual cost of the rehabilitation program (i.e., the "sunk cost") should include design costs and the cost of the SSES study, as well as the cost of the sewer rehabilitation itself. The actual I/I reduction is determined by comparing post-construction flow to the flow data collected during the SSES study. The post-construction flow data should be based on plant flow records. Monitoring flows at multiple points throughout the sewer system is not recommended.

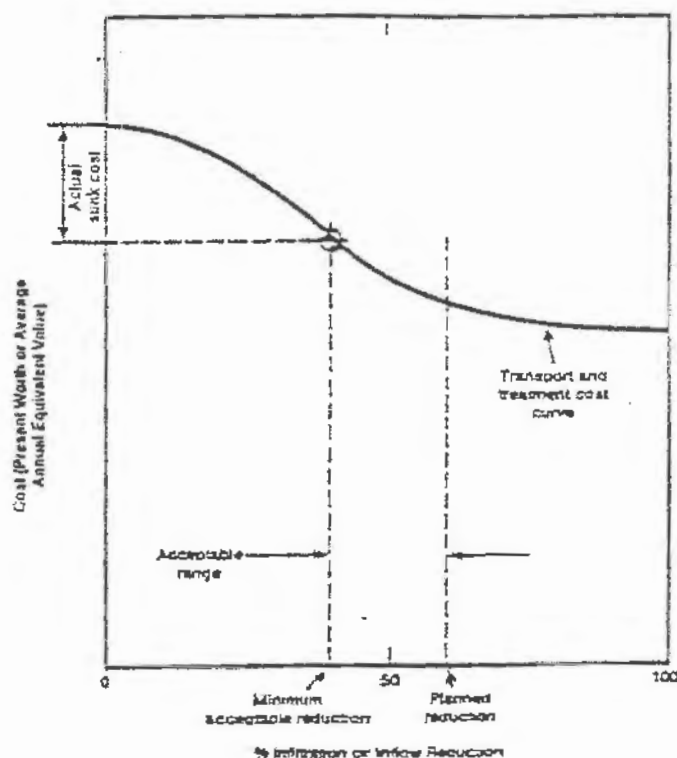


Figure 2 Determining Acceptable Range of I/I Reduction

If the actual I/I reduction is greater than the minimum acceptable I/I reduction derived from *Figure 2*, the rehabilitation project can be certified as meeting performance objectives. However, it should be noted the treatment plant design capacity is based on the planned I/I reduction projected in the SSES study. If the actual I/I reduction is significantly less than planned, redesign may be required to increase treatment capacity. Therefore, every effort should be made to develop realistic estimates of the amount of I/I that can be cost-effectively removed.

As an I/I project proceeds from initial planning through design and construction, certain assumptions made during the cost-effectiveness analysis may prove to be invalid. This could affect the cost-effectiveness of the project and the determination of minimum acceptable I/I reduction. For example, if the actual rehabilitation cost is greater than projected, the range of acceptable I/I reduction is reduced (see Figure 3). If the reduction in transport and treatment costs is not as great as expected, this will also reduce the acceptable range.

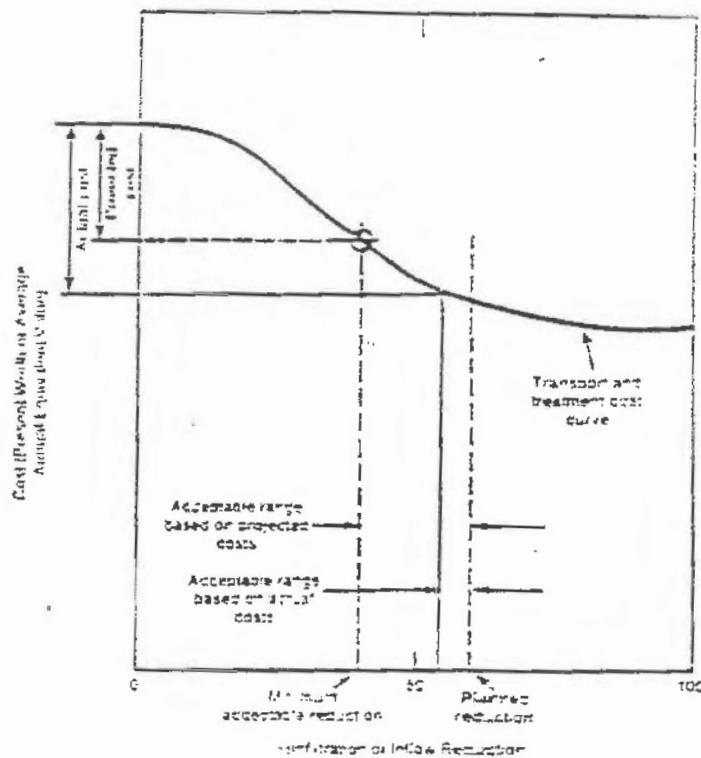


Figure 3 Effect of Underestimating Project Costs

Therefore, it is important to recalculate the acceptable range of I/I reduction at different stages of the project (e.g., after approval of SSES study; after completion of design and preparation of detailed cost estimates; after receipt of construction bids; and at completion of various construction phases) using updated cost estimates or actual cost data.

As the minimum acceptable I/I reduction limit approaches the planned I/I reduction target, the cost-effectiveness of the project should be reevaluated. The risk of the project not achieving the minimum acceptable I/I reduction increases as the acceptable range derived from Figure 2 diminishes. If there is evidence that actual rehabilitation costs will be much higher than projected, it may be advisable to reassess the objectives of the rehabilitation program, and modify the scope of work accordingly.

Summary

This brochure presents an overview on how to approach the implementation of an infiltration/inflow correction program. A schematic of the process is presented in Figure 4. The basic steps are as follows:

1. Determine if excessive infiltration exists using 120 gpcd guideline.
2. Determine if excessive inflow exists using 275 gpcd guideline.

3. If infiltration and inflow are non-excessive, proceed with project design based on measured flow data.
4. If either excessive infiltration or excessive inflow exists, conduct sewer system evaluation survey (SSES) study.
5. Select most cost-effective sewer rehabilitation alternative.
6. Implement sewer system rehabilitation; verify project cost-effectiveness as updated cost data become available.
7. Upon completion of project (i.e., at end of one-year performance period), certify that I/I reduction is within acceptable range.

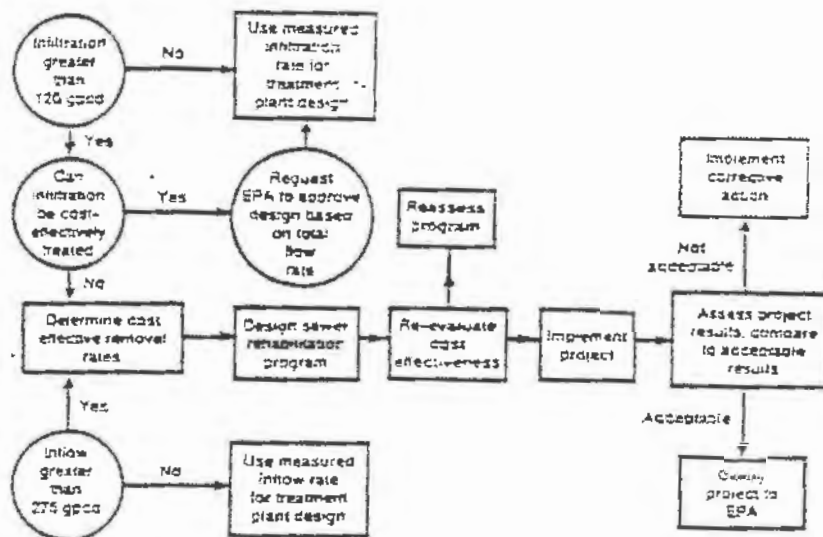


Figure 4 I/I Project Flow Chart

To achieve affirmative project certification, the estimates of rehabilitation cost and I/I reduction must be realistic. Underestimating project cost can invalidate the conclusions of the cost-effectiveness analysis conducted as part of the SSES study. It is important to include all cost items in the cost estimates (the cost of service line rehabilitation should be included even though it is not grant eligible).

Sewer rehabilitation programs can significantly reduce transport and treatment costs, and therefore should be given serious consideration. However, the cost-effectiveness of such projects must be carefully evaluated to assure that rehabilitation is justified. The requirements for project certification now mandate that project cost-effectiveness be confirmed at the completion of the project. Grantees and their engineers should carefully assess their I/I correction plans to be sure that project certification requirements can be satisfied.

Further guidance on this subject is available from U.S. EPA Regional Offices and delegated State agencies.

I/A TECHNOLOGIES

PARTIAL LISTING OF INNOVATIVE AND ALTERNATIVE TECHNOLOGIES

TREATMENT TECHNOLOGIES

ENERGY RECOVERY TECHNOLOGIES

ANOXIC/OXIC TREATMENT SYSTEMS
AQUACULTURE
AQUIFER RECHARGE
BIOLOGICAL AERATED FILTERS
CONSTRUCTED WETLANDS
CONTAINMENT PONDS
COUNTER CURRENT AERATION
DIRECT REUSE (non potable)
HORTICULTURE
INTRA-CHANNEL CLARIFIERS
OVERLAND FLOW
OZONATION DISINFECTION
PULSED BED FILTRATION
RAPID INFILTRATION
SEQUENCING BATCH REACTORS
AVICULTURE
SPRAY IRRIGATION
ULTRA VIOLET DISINFECTION

ANAEROBIC DIGESTION (>90% methane recovery)
CO-GENERATION OF ELECTRICITY
SELF-SUSTAINING INCINERATION

INDIVIDUAL AND COLLECTION TECHNOLOGIES

CLUSTER SYSTEMS
GRINDER PUMP PRESSURE SEWERS
ON-SITE SYSTEMS
SEPTAGE TREATMENT
SMALL DIAMETER GRAVITY SEWERS
STEP PRESSURE SEWERS
VACUUM SEWERS

SLUDGE TREATMENT TECHNOLOGIES

AERATED STATIC PILE COMPOSTING
ENCLOSED MECHANICAL COMPOSTING
LAND APPLICATION OF SLUDGE
REVEGETATION OF DISTURBED LAND
STATIC PILE COMPOSTING

OPEN SPACE AND RECREATIONAL OPPORTUNITIES

TYPICAL RECREATIONAL OR OPEN SPACE OPPORTUNITIES ASSOCIATED WITH WASTEWATER PROJECTS

Use of interceptors rights of way for running, hiking, bicycling, or equestrian trails.

Use of project roadway access to waterways for canoeing, boating, fishing, or swimming.

Provisions for access to natural and historic areas for camping, photography, or nature appreciation.

Use of the project site for sports such as target shooting, archery, or field sports.

Use of onsite facilities for educational purposes.

Use of effluent or sludge to improve other recreational areas.

ALTERNATIVES EVALUATION

I. DEVELOPMENT AND SCREENING OF ALTERNATIVES

1. Development of Alternatives
2. Optimum Operation of Existing Facilities
3. Regionalization
4. Unsewered Areas
5. Conventional Collection Systems
6. Alternative Collection Systems
7. Evaluation of Sewer Alignments
8. Wastewater Management Techniques
 - a. Conventional Technologies
 - b. Alternative Technologies
 - c. Innovative Technologies
9. Municipal Treatment of Industrial Waste
10. Staged Construction
11. Multipurpose Projects

II. EVALUATION OF PRINCIPAL ALTERNATIVES

1. Alternative Evaluation
2. Evaluation of Monetary Costs
 - a. Total Present Worth or Equivalent Uniform Annual Costs Analysis
 - b. 20 year Planning Period
 - c. Federal Discount Rate (8.75 percent for FY 1991)
3. Environmental Evaluation
4. Evaluation of System Reliability
5. Evaluation of Energy Requirements
6. Evaluation of Implementability
7. Evaluation of Open Space and Recreational Opportunities
8. Comparison of Alternatives
9. Views of the Public and Concerned Interests

III. SELECTED ALTERNATIVE

1. Justification and Description of Selected Alternative
2. Preliminary Basis of Design of Selected Alternative
3. Detailed Cost Estimate of Selected Alternative
4. Capital Financing Plan
5. Demonstration of Financial Capability
6. Arrangements for Implementation
 - a. Detailed Implementation Schedule
 - b. Intermunicipal Service Agreements
 - c. Sewer Use Ordinance and User Charge System

ENVIRONMENTAL ASSESSMENT

LISTING OF ENVIRONMENTAL FACTORS TO BE EVALUATED

Air Quality

Noise

Endangered or Threatened Species

Fish and Wildlife Resources

Wetlands, Flood Plains, and Coastal Areas

Surface Water and Groundwater Resources

Sludge Disposal

Loss of Prime Agricultural Land

Excessive Energy Consumption

Visual Effects and Community Amenities

Socioeconomic Considerations

Historical or Archaeological Sites

Wild and Scenic Rivers

Old Fill Areas / Landfills

Other Environmentally Sensitive Areas

APPENDIX I

TAPPING FEES

WEST GOSHEN SEWER AUTHORITY

STATEMENT OF PURPOSE

Glace Associates, Inc. (Glace) has been retained by the West Goshen Sewer Authority (the Authority), Chester County, Pa., to determine an allowable sewer tapping fee pursuant to Act 203 of 1990 of the Pennsylvania Municipality Authorities Act. The results of this determination will be used by the Authority for the purpose of setting a tapping fee to apply to new users of the existing sewer system.

The fee charged by Glace for preparation of this report is not contingent upon our determination of the tapping fee amount.

SOURCES OF INFORMATION

Information used in the tapping fee study was obtained primarily from historic construction cost records and contract documents archived by Glace and project financing records provided by the Authority.

DEFINITION OF TAPPING FEE

The tapping fee is a cost based fee which may be charged to new sewer system users to recover the investment made by current and previous users for excess capacity available to the new user. Authorization to charge the fee arises from Act 203, which sets forth the manner in which the allowable fee is to be calculated.

The fee is comprised of up to four parts, capacity, collection, special purpose, and reimbursement. Only the capacity and collection parts apply to this study.

The capacity part typically includes sewer treatment plants and related facilities such as forced mains, pumping stations and certain interceptors. The collection part refers to piping and appurtenances not considered to be capacity related. The distinction between these two parts is not always clear, and a review of the individual system components, in the context of their function in the overall system, is required.

The tapping fee is normally stated as dollars per EDU and applied to new customers on an EDU basis.

TAPPING FEE COMPUTATION

The tapping fee is determined by converting the recoverable system cost to a unit cost based on overall system capacity. The recoverable cost is the total current cost of the system, reduced by grants used to finance the system, and further reduced by any outstanding debt on other system financings. System capacity is the design capacity.

In this case, the total system cost included construction costs related to a sewer treatment and collection system constructed in 1963, an interceptor constructed in 1979, a 1979 plant expansion, various sewer extensions during the 1970's, and various recent plant and sewer expansion and extension projects. Recent costs also include costs related to addition of a belt filter press and a major interceptor. Related costs include those associated with a debt restructuring, financing, engineering, legal, administration, and acquisition of rights-of-way.

Due to the component nature of the Authority's system, multiple construction projects spread over a 28 year period, the decision was made to develop the fee in three major parts: 1963 Projects, Taylor Run Interceptor and 1979 Plant Expansion, and Various Projects - 1989. Within each of the broad categories, the computations were broken down into numerous individual cost components. The final tapping fee is the summation of the various component fees.

1963 PROJECTS

The major sources of construction cost information for the 1963 project were the Certified completed cost schedules, archived by Glace. The original project was comprised of five contracts covering a sewer treatment plant and related mechanical and electrical work, and a sanitary sewer system.

The source of related non-construction costs were Statements of Cash Receipts and Disbursements from the historic financial statements of the Authority.

The construction costs were scheduled and identified as either capacity or collection and the non-construction costs were allocated to capacity and collection on the basis of construction cost classification.

TAYLOR RUN INTERCEPTOR AND 1979 PLANT EXPANSION

The sources of ~~the~~ both the construction and non-construction costs were the final construction invoices for the projects. The correctness of the cost figures was verified by reference to the Authority financial statements.

1989 VARIOUS PLANT EXPANSIONS

The sources of the construction costs were the final construction invoices. The correctness of the cost figures was verified by reference to the Authority financial statements.

The sources of various system expansions and extensions were the reviewed financial statements of the Authority.

GRANTS

The 1963 and 1979 project components were financed in part by grants. The source and amount of the grants were determined by reviewing archived correspondence files with the Authority financial statements serving as verification. Grant financing was not used for the recent 1989 plant additions.

As stipulated in the Act 203, costs recoverable through a tapping fee do not include system costs financed by grants. Therefore, the original system costs were reduced by the amount of the grants, prior to determining the current recoverable costs.

DEBT

The original system was financed by long term bonds, Series of 1961. The 1979 project was ^afinanced by long term bonds, Series of 1978. These issues were repaid and/or refinanced and the Authority issued bonds known as the Series of 1985 and Series of 1986. A Series of 1991 for the amount of \$7.125 million refinanced all but \$105 thousand of the Series of 1985 and \$45 thousand of the Series of 1986, as well as providing financing for the 1989 projects.

As stipulated in the Act 203, current costs to be recovered through a tapping fee must be first reduced by the outstanding principal on debt used to finance the system. Therefore, the outstanding debt as of the tapping fee date was subtracted from the current dollar system cost.

APPROACH

The allowable tapping fee is based on current value. The legislation provides for three alternative approaches to determining current value: current replacement cost, original system cost plus total interest paid on debt used to finance the cost, or original cost inflated to current value using a construction cost index.

Based upon the various ages of the system components and the type of cost information available, it was determined that the 1963 and 1979 costs could best be restated in current dollars using a construction cost inflation index. The various 1989 projects were stated at original cost plus interest paid on debt.

The construction cost index was obtained from data published by Engineering News Record. The interest paid on debt was obtained from Authority financial statements and financing records.

The cost index was applied to original cost, net of grants. The debt was subtracted from the current cost figures.

The recoverable costs were converted to an allowable cost per gallon by dividing by the current system capacity. This unit recoverable cost was then multiplied by a unit usage factor of gallons per EDU per day resulting in a component tapping fee per EDU. The individual component tapping fees were then summed, resulting in a total tapping fee.

RESULTS

The original system cost for the 1963 projects was \$3.9 million, of which \$225 thousand was financed by grants. The cost index was about 5.3 which resulted in a current system cost of \$19.7 million. The total component tapping fee was \$1313.61.

The original system cost for the Taylor Run Interceptor and 1979 plant expansion was \$10.2 million, of which \$5.9 million was financed by grants. A cost index of about 1.6 was applied to the net equity of \$4.3 million, resulting in a current cost of \$7.3 million. The total component tapping fee was \$484.76.

The cost of the various 1989 projects was \$7.2 million, of which \$22 thousand was funded by grants. The total interest paid was \$2.6 million, of which \$301 thousand related to debt restructuring. The total of the equity plus interest amount of \$9.8 million was reduced by \$6.7 million of outstanding principal, most of which relates to the Series of 1991 bonds. The total component tapping fee was \$203.48.

The sum of the component tapping fees is \$2001.85.

It is necessary that the fee be re-computed at least annually. It will change as debt is retired, and if changes are made to the system which increase available capacity.

WEST GOSHEN SEWER AUTHORITY
Tapping Fee Summary Schedule

PRELIMINARY

17-Sep-91

System Capacity: (Gallons per Day) 4,500,000
Standard Usage: (Gallons per EDU/Day) 300

Dollars per EDU	Capacity	Collection	Combined
<hr/>			
Original Sewer Treatment Plant (1963)	\$ 380.27	\$.00	\$ 380.27
Contract No. 1 Sewer Treatment Plant	6.87	.00	6.87
Contract No. 2 Plumbing	9.37	.00	9.37
Contract No. 3 Heating & Ventilation	31.40	.00	31.40
Contract No. 4 Electrical	211.82	373.32	585.14
Contract No. 5 Sanitary Sewer System	201.82	98.74	300.56
Related Project Costs			
<hr/>			
Taylor Run Interceptor (1979)			
Contract No. 1	37.55	.00	37.55
Contract No. 2	16.72	.00	16.72
Contract No. 3	4.83	.00	4.83
Related Project Costs	20.15	.00	20.15
<hr/>			
Plant Expansion (1979)			
Contract No. 1	48.85	.00	48.85
Contract No. 2	187.18	.00	187.18
Contract No. 3	2.60	.00	2.60
Contract No. 4	1.55	.00	1.55
Contract No. 5	26.30	.00	26.30
Related Project Costs	41.94	.00	41.94
<hr/>			
Sewer Extension - Construction	.00	37.23	37.23
Sewer Extension - Related Costs	.00	59.86	59.86
<hr/>			
Various Expansion Projects (1989)			
Oak Hill/Cloverly Farms	13.00	.00	13.00
Northeast Interceptor	35.95	.00	35.95
NE Pump St Contr 2 General	11.89	.00	11.89
NE Pump St Contr 3 Elect	1.42	.00	1.42
Belt Filter Press	3.24	.00	3.24
Related Project Costs	15.27	.00	15.27
Lynwood Extension	1.32	.00	1.32
Lynwood - Alliance	5.54	.00	5.54
Taylor Run Modifications	1.69	.00	1.69
Birchlan, Lynwood & Shannon	.00	99.76	99.76
Debt Restructuring	14.40	.00	14.40
<hr/>			
TAPPING FEE TOTALS	\$ 1332.94	\$ 668.91	\$ 2001.85
<hr/>			

APPENDIX J

INTERMUNICIPAL AGREEMENTS

AGREEMENT

THIS AGREEMENT made as of the *6th* day of *September* 1977, by and among West Goshen Sewer Authority (West Goshen Authority), East Goshen Municipal Authority (East Goshen Authority), bodies corporate and politic, organized and existing under the Pennsylvania Municipality Authorities Act of 1945, P.L. 382, as amended (Act), the Township of West Goshen (West Goshen) and the Township of East Goshen (East Goshen), all located in Chester County, Pennsylvania.

W I T N E S S E T H :

WHEREAS, West Goshen Authority has constructed a sewer system (West Goshen System) and wastewater treatment plant (Treatment Plant), which Treatment Plant is a regional facility presently serving West Goshen and portions of East Goshen; and

WHEREAS, East Goshen Authority has constructed a sewer system (East Goshen System) in a portion of East Goshen, the sewage from which is treated and disposed of at the Treatment Plant; and

WHEREAS, West Goshen Authority has leased the West Goshen System and the Treatment Plant to West Goshen, pursuant to the terms of a lease dated as of September 1, 1961 (W. G. Original Lease); and

WHEREAS, East Goshen Authority has leased the East Goshen System to East Goshen, pursuant to the terms of a lease dated as of December 30, 1968 (E. G. Original Lease); and

capacity therein to convey sewage from the boundaries of West Goshen, in addition to serving portions of East Goshen; and

WHEREAS, East Goshen Authority intends to lease the Interceptor to East Goshen, pursuant to the terms of a lease (E. G. Supplemental Lease) supplemental to the E. G. Original Lease; and

WHEREAS, West Goshen, as lessee of the West Goshen System and the Treatment Plant, proposes to treat and dispose of sewage emanating from the East Goshen System pursuant to the terms and conditions of this Agreement hereinafter set forth; and

WHEREAS, East Goshen, as lessee of the Interceptor, proposes to transport sewage emanating from those portions of West Goshen connected to the Interceptor pursuant to the terms and conditions in this Agreement hereinafter set forth; and

WHEREAS, it is in the public interest, in order to provide for the health and safety of the residents of the communities involved in this Agreement, that this Agreement be entered into;

NOW, THEREFORE, the parties hereto, each binding itself, its successors and assigns, and each representing that it has proper legal authority to enter into this contract, and each intending to be legally bound hereby, do mutually represent, covenant and agree as follows:

ARTICLE I

DEFINITIONS

Section 1.01. Defined Terms. The terms defined

effective upon its execution and delivery by all parties hereto and shall remain in effect until terminated by mutual agreement of all parties; provided, however, it shall not be terminated as long as any Bonds of any party secured by revenues from any facilities are deemed to be outstanding.

Section 3.02. Reserved Capacity. (a) Subject to the payment of charges and subject, also, to the limitations of this Agreement (including but not limited to those set forth in Article VII hereof), West Goshen Authority grants unto each party hereto the right, during the term of this Agreement, to discharge Sewage Wastes into the Treatment Plant and the Capital Additions in the maximum quantities set forth in Exhibit "C" hereto and West Goshen, as lessee of the West Goshen System and Treatment Plant, agrees to convey, treat and dispose of the same in a manner approved by DER and in accordance with the terms and conditions herein set forth.

(b) Subject to the above limitations, East Goshen Authority grants unto each party hereto the right, during the term of this Agreement, to discharge Sewage Wastes into the Interceptor in the maximum quantities set forth in Exhibit "C" hereto and East Goshen, as the lessee of the East Goshen System, agrees to convey the same to the Point of Connection of the Interceptor and Capital Additions in accordance with the terms and conditions herein set forth.

(c) If the rated capacity of any facility is increased by reason of changes in the manner of operation or if such rated capacity is either increased or decreased by

action of appropriate governmental bodies having regulatory jurisdiction, then the Reserved Capacity (either initial or ultimate, as appropriate) for each party shall be adjusted accordingly and proportionately. If any such rerating will result from capital expenditures, then each party hereto shall have the right and obligation to provide its proportionate share of the required capital, said share to be in the same proportion as their Reserved Capacity.

Section 3.03. Delivery of Sewage Wastes. (a) Except as herein otherwise provided, all Sewage Wastes up to and including the capacities reserved herein, originating in each party's Sewage Collection System, shall be delivered to a Point or Points of Connection for transportation to and treatment at the Treatment Plant and no Sewage Wastes from any party's Sewage Collection System shall be diverted, directly or indirectly, to another treatment facility until the Reserved Capacity is reached; provided, however, that any flows from portions of the East Goshen Collection System originating outside the drainage basin of the Chester Creek may be diverted at any time at the sole option of East Goshen Authority or East Goshen as Lessee, upon giving 90 days written notice of such diversion to West Goshen and West Goshen Authority.

(b) East Goshen Authority and East Goshen agree that wastes originating outside East Goshen shall not be delivered to the Treatment Plant until said parties have entered into an agreement with the adjoining municipality or related authority from which such wastes are to be received,

which agreement shall provide for compliance by said municipality or authority with the quality and quantity provisions of this Agreement and those provisions hereof relating to compliance with existing laws and regulations and imposition of charges required thereby, and which agreement shall expressly grant to West Goshen and West Goshen Authority the direct legal right to enforce all of such provisions against such municipality or authority as a third party beneficiary of the said agreement. East Goshen Authority shall deliver an executed counterpart of each of such agreements to West Goshen and West Goshen Authority immediately upon execution of the same.

ARTICLE IV

OPERATIONS AND ENFORCEMENT

Section 4.01. Meter Stations. At each Point of Connection indicated on Exhibits A and B, a meter station for the purpose of measuring the flow through such Point shall be installed and owned by the Authority owning the facility into which the Sewage Wastes are being discharged at that Point. Meters shall be of the continuous reading type which establish daily flows. The design and construction of all meter stations shall be compatible. The expense of maintaining and operating each meter station shall be borne by the operator of the respective facility and shall be included in the Total Cost of Operating and Maintaining said facility. Flows through any Point of Connection at which no meter is installed shall be determined by the estimate of the Consulting Engineers for the party operating the respective facility.

Section 10.09. Meaning of Phrases. When reference is made herein to "each party", or the "respective party" or phrases of similar import, such shall refer to the particular municipality or to its municipality authority, as appropriate under the current circumstances.

Section 10.10. Counterparts. This Agreement may be executed in any number of counterparts, each of which shall be properly executed by the parties hereto and all of which shall be regarded for all purposes as one original and all of which shall constitute and be but one and the same.

Section 10.11. Addresses. Whenever a notice is required to be given in writing by mail, the following addresses shall be used unless a different address is specifically called for:

<u>NAME</u>	<u>ADDRESS</u>
West Goshen Authority	Township Building 1025 Paoli Pike West Chester, PA 19380
East Goshen Authority	1580 Paoli Pike West Chester, PA 19380
Township of West Goshen	West Goshen Township 1025 Paoli Pike West Chester, PA 19380
Township of East Goshen	1580 Paoli Pike West Chester, PA 19380

Section 10.12. Termination of Existing Agreements.
Upon the execution hereof, all existing agreements between any of the parties hereto with respect to the transportation and/or treatment of Sewage Wastes shall terminate and be succeeded by the appropriate terms of this Agreement.

IN WITNESS WHEREOF, the parties hereto have caused


these presents to be executed and their respective corporate
seals affixed the day and year first above written.

ATTEST:


Secretary

(SEAL)

WEST GOSHEN SEWER AUTHORITY

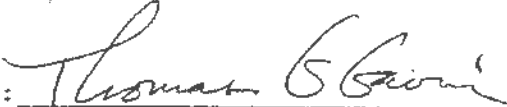
By: 

ATTEST:


Secretary

(SEAL)

TOWNSHIP OF WEST GOSHEN

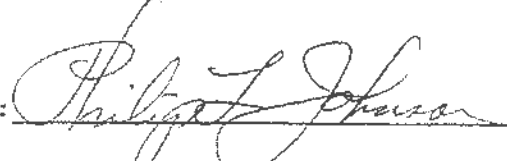
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ATTEST:

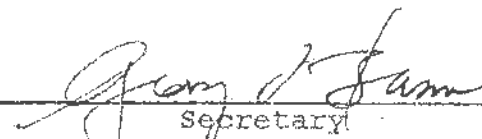

Secretary

(SEAL)

TOWNSHIP OF EAST GOSHEN

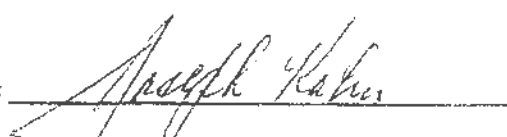
By: 

ATTEST:


Secretary

(SEAL)

EAST GOSHEN MUNICIPAL AUTHORITY

By: 

SEWAGE TREATMENT AGREEMENT

THIS AGREEMENT made the *5th* day of *April*, 1979, by and among West Goshen Sewer Authority (West Goshen Authority), a body corporate organized and existing under the Pennsylvania Municipality Authorities Act of 1945, P.L. 382, as amended (Act), the Township of West Goshen (West Goshen) and the Township of Westtown (Westtown), both Townships of the Second Class located in Chester County, Pennsylvania.

WITNESSETH:

WHEREAS, West Goshen Authority has constructed a sewage system (West Goshen System/West Goshen Sewage System) and wastewater treatment plant (Treatment Plant), which Treatment Plant is a regional facility presently serving West Goshen and portions of East Goshen Township; and

WHEREAS, West Goshen Authority has leased the West Goshen System and the Treatment Plant to West Goshen, pursuant to the terms of a lease dated as of September 1, 1961 (W. G. Original Lease); and

WHEREAS, The Pennsylvania Department of Environmental Resources (DER) has ordered the West Goshen Authority to upgrade the degree of treatment at said Treatment Plant; and

WHEREAS, pursuant to said order, West Goshen Authority intends to upgrade and, concurrently, enlarge the treatment capacity of the Treatment Plant from 2.5 million gallons per day to 4.5 million gallons per day and to make other capital additions to the West Goshen System, including a pumping station at Westtown Way and a force main in Little Shiloh Road to convey sewage from the boundaries of East Goshen Township in addition to servicing portions of West Goshen (Capital Additions); and

WHEREAS, the Treatment Plant, the Capital Additions and the portions of the West Goshen System to be used by Westtown and West Goshen are generally located as set forth in Exhibit "A" attached hereto; and

WHEREAS, West Goshen Authority intends to lease the Capital Additions and the Treatment Plant, as enlarged and expanded, to West Goshen, pursuant to the terms of a lease (W. G. Supplemental Lease) supplemental to the W. G. Original Lease; and

WHEREAS, Westtown is in the process of constructing a sewage system (Westtown System/Westtown Sewage System) for the purpose of serving portions of Westtown requiring public sewers, said system being located generally as set forth in Exhibit "A" attached hereto; and

WHEREAS, Westtown has requested West Goshen Authority and West Goshen as lessee of the West Goshen System and Treatment Plant, to accept into the West Goshen System and to provide sewage treatment capacity in the Treatment Plant a limited amount of sewage emanating from the Westtown System; and

WHEREAS, West Goshen, as lessee of the West Goshen System and the Treatment Plant, proposes to treat and dispose of sewage emanating from the Westtown System pursuant to the terms and conditions of this Agreement hereinafter set forth; and

WHEREAS, it is in the public interest, in order to provide for the health and safety of the residents of the communities involved in this Agreement, that this Agreement be entered into;

NOW, THEREFORE, the parties hereto, each binding itself, its successors and assigns, and each representing that it has proper legal authority to enter into this contract, and each intending to be legally bound hereby, do mutually represent, covenant and agree as follows:

its execution and delivery by all parties hereto and shall remain in effect until terminated by mutual agreement of all parties; provided, however, it shall not be terminated as long as any West Goshen Authority Bonds secured by revenues from any facilities are deemed to be outstanding.

Section 3.02. Reserved Capacity. (a) Subject to the payment of charges and subject, also, to the limitations of this Agreement (including but not limited to those set forth in Article VII hereof), West Goshen Authority grants unto Westtown the right, during the term of this Agreement, to discharge Sewage Wastes into the Treatment Plant and Sewage System at the points designated on Exhibit "A" and in the maximum quantity of 230,000 gallons per day and West Goshen, as lessee of the West Goshen System and Treatment Plant, agrees to convey, treat and dispose of the same in a manner approved by DER and in accordance with the terms and conditions herein set forth; but in no event shall the combined total of gallons per day discharge by Westtown at the Westmount and Cuddeback points of connection shown on Exhibit "A" exceed 100,000 gallons per day.

(b) If the rated capacity of the Treatment Plant of West Goshen Authority is either increased or decreased by action of appropriate governmental bodies having regulatory jurisdiction, then the Reserved Capacity for Westtown in said Treatment Plant shall be adjusted accordingly and proportionately. If any such rerating will result from capital expenditures, then Westtown shall have the obligation to provide its proportionate share of the required capital, said share to be in the same proportion as its Reserved Capacity in the Treatment Plant and said share to be subject to the contribution provisions of Section 4.04 hereof.

Section 3.03. Delivery of Sewage Wastes. (a) Except as herein otherwise provided, all Sewage Wastes up to and including the capacities reserved herein, originating in Westtown's Sewage System, shall be delivered to a point

from any party's Sewer System shall be delivered, or will be delivered indirectly, to another treatment facility until the Reserved Capacity is reached.

(b) Westtown agrees that wastes originating outside Westtown shall not be delivered to the Treatment Plant until Westtown has entered into an agreement with the adjoining municipality or related authority from which such wastes are to be received, which agreement shall provide for compliance by said municipality or authority with the quality and quantity provisions of this Agreement and those provisions hereof relating to compliance with existing laws and regulations and imposition of charges required thereby, and which agreement shall expressly grant to West Goshen and West Goshen Authority the direct legal right to enforce all of such provisions against such municipality or authority as a third party beneficiary of the said agreement. Westtown shall deliver an executed counterpart of each of such agreements to West Goshen and West Goshen Authority immediately upon execution of the same.

ARTICLE IV

OPERATIONS AND ENFORCEMENT

Section 4.01. Meter Stations. At each Point of Connection indicated on Exhibit "A", a meter station for the purpose of measuring the flow through such Point shall be installed by Westtown and owned by the Authority or Township owning the facility where the meter station is located. Meters shall be of the continuous reading type which establish daily flows. The design and construction of all meter stations shall be compatible. The expense of maintaining and operating each meter station shall be borne by the owner of the respective facility and shall be included in the Total Cost of Operating and Maintaining said facility.

Section 4.02. Facilities Insurance. (a) West Goshen Authority will

Agreement and the remainder of this Agreement shall, in such circumstances, be construed and enforced as if such illegal, invalid or unenforceable provision had not been contained herein.

Section 9.08. Jointly Used Collectors. When any parties hereto jointly use collector or interceptor sewer mains which connect to Points of Connection, meter stations shall be installed, where possible, to measure the flow of each party into such joint facility.

Section 9.09. Meaning of Phrases. When reference is made herein to "each party", or the "respective party" or phrases of similar import, such shall refer to the particular municipality or to its municipality authority, as appropriate under the current circumstances.

Section 9.10. Counterparts. This Agreement may be executed in any number of counterparts, each of which shall be properly executed by the parties hereto and all of which shall be regarded for all purposes as one original and all of which shall constitute and be but one and the same.

Section 9.11. Addresses. Whenever a notice is required to be given in writing by mail, the following addresses shall be used unless a different address is specifically called for:

<u>NAME</u>	<u>ADDRESS</u>
West Goshen Authority	Township Building 1025 Paoli Pike West Chester, Pa. 19380
Township of West Goshen	West Goshen Township 1025 Paoli Pike West Chester, Pa. 19380
Township of Westtown	Westtown, Pa. 19395

IN WITNESS WHEREOF, the parties hereto have caused these presents to be executed and their respective corporate seals

ATTEST:

L. Wood

Secretary

(SEAL)

WEST GOSHEN SEWER AUTHORITY

BY: R. DeB...

ATTEST:

J. B. Dugg

Secretary

(SEAL)

TOWNSHIP OF WEST GOSHEN

BY: Robert C. L...

ATTEST:

E. H. L. Coff

Secretary

(SEAL)

TOWNSHIP OF WESTTOWN

BY: Charles S. Jones

ADDENDUM NO. 1
TO SEWAGE TREATMENT AGREEMENT

BACKGROUND

In April, 1985 West Goshen Sewer Authority ("West Goshen Authority"), Township of West Goshen ("West Goshen"), West Whiteland Municipal Authority ("West Whiteland Authority") and Township of West Whiteland ("West Whiteland") entered into an Intergovernmental Cooperation Agreement to provide for receipt and treatment of sanitary waste emanating from West Whiteland. In Section 3.02(b) of that Agreement, West Whiteland granted to West Goshen the right to discharge 50,000 GPD of sewage into a portion of West Whiteland's system. Currently, Lewis J. Brandolini, III, is seeking from West Goshen approval of a subdivision formerly known as Harvest Hill, and now known as Canterbury. The sewage from this development should move most logically by gravity into the West Whiteland system for ultimate treatment in West Goshen. It appears, though, that sewage from the 33 homes proposed for Canterbury were not contemplated to be part of the 50,000 gallons per day (GPD) reservation referred to in Section 3.02(b) of the Agreement. It is anticipated that other potential land development in West Goshen would also be best served by sewage service flowing through West Whiteland and then to the West Goshen Plant. The purpose of this Addendum is to modify the Agreement to provide for additional free capacity, up to a maximum of 60,000 GPD, for West Goshen in the West Whiteland sewer facilities (including pump station). Any capacity over 60,000 GPD shall be paid for proportionately by

West Goshen. In addition, Section 3.03(a) provided that West Whiteland could not divert Sewage Waste from West Goshen to another treatment facility. West Whiteland now wishes limited relief from this provision. Another purpose of this Addendum is to amend the Agreement to provide for diversion of Sewage Waste under certain circumstances. Finally, all the facilities owned by West Whiteland Authority and all responsibilities and obligations of West Whiteland Authority have been transferred and assigned to West Whiteland, and this Addendum shall clarify this change.

TERMS AND CONDITIONS.

AND NOW, this day of , 1989, in consideration of One (\$1.00) Dollar, the mutual covenants and promises contained herein, and intending to be legally bound hereby, it is agreed by and between West Goshen and West Whiteland that:

(1) Section 3.02(a), Section 3.02(b) and Section 3.03 of the April, 1985 Sewage Treatment Agreement of the parties shall read as follows:

§3.02(a) Subject to the payment of charges and subject, also, to the limitations of this Agreement (including but not limited to those set forth in Article VII hereof), West Goshen Authority grants unto West Whiteland the right, during the terms of this Agreement, to discharge Sewage Waste into the Treatment Plant and Sewage System at the point designated on Exhibit "A" and in the maximum quantity of 420,000 gallons per day (average daily flow) and West Goshen, as lessee of the West Goshen System and

Treatment Plant, agrees to convey, treat and dispose of the same in a manner approved by the Pennsylvania Department of Environmental Resources (DER) and in accordance with the terms and conditions herein set forth. The 420,000 gallons per day (average daily flow) reserved capacity shall be exclusive of Sewage Waste emanating from West Goshen. If in the future West Goshen expands or obtains a rerating of its waste water treatment capacity, it shall make a good faith effort to consult with West Whiteland in regard to reserving additional capacity in the West Goshen facilities for West Whiteland. During a plant expansion, West Goshen shall also make a good faith effort to incorporate into the design of any such additional treatment capacity the requested capacity for West Whiteland, which shall pay its proportionate share of the cost of any such expansion or rerating. West Goshen shall have no duty to consider additional capacity for West Whiteland if the cost of expansion beyond the capacity needed for West Goshen increases to the disproportionate disadvantage of West Goshen.

§3.02(b) West Whiteland grants unto West Goshen: (a) the right, during the term of this Agreement, to discharge Sewage Waste into West Whiteland's system in Area "A" of Exhibit "A" at points to be agreed upon by the parties and in the maximum quantity of 100,000 GPD (average daily flow) of which the free conveyance of the 60,000 GPD (average daily flow) shall be apportioned: and (b) the right to discharge Sewage Waste into West Whiteland's system shown in both Areas "A" and "B" of Exhibit "A" at points to be agreed upon by the parties and in the maximum quantities of 250,000 GPD (average daily flow) of which 60,000 GPD (average daily flow) shall be at no cost to West Goshen. Except for the above-referenced 60,000 GPD West Goshen shall be charged based upon a proportionate share of the electric, repair and replacement costs at that pump station. It is contemplated that said Sewage Waste shall flow into the facilities in Areas "A" and "B" of Exhibit "A" at the point to be

designated by West Goshen on Exhibit "A" and that all facilities in Areas "A" and "B" constructed by West Whiteland shall be sized to receive at least 670,000 GPD (average daily flow) with 250,000 GPD (average daily flow) of that allocated to West Goshen. West Goshen shall pay for the cost of facilities necessary to accomplish the aforementioned West Goshen connections to the West Whiteland system.

§3.03(a) Except as herein otherwise provided, all Sewage Waste up to and including the capacities reserved herein, originating in that portion of West Whiteland's Sewage System, designated as Area "A" in Exhibit "A", may be delivered to a Point or Points of Connection for transportation to and treatment at the Treatment Plant. Once West Whiteland's Sewage Waste flows to West Goshen exceed 225,000 GPD, excluding flow originating in West Goshen Township, Sewage Waste may be diverted by West Whiteland to the Borough of West Chester sewer system, but not to exceed 600,000 GPD. Otherwise, no Sewage Waste (including existing and future flows) from any party's Sewage System shall be diverted, directly or indirectly, to another treatment facility until the Reserved Capacity is reached or until West Goshen grants a waiver from this requirement. In no event shall a customer in West Whiteland, once connected to the system flowing into West Goshen, have flows diverted from West Goshen (unless jointly agreed by both parties to the contrary) if such diversion would result in a reduction of flow to West Goshen.

§3.03(b) West Whiteland shall have the right to install a pump station adjacent to and on the property of the West Goshen Taylor Run Pump Station, for the purpose of transmitting its sewage to the Borough of West Chester sewer system. The construction plans for the West Whiteland Pump Station shall be in accordance with West Goshen Specifications, and shall otherwise be subject to a prior approval of West Goshen.

§3.03(c) Any diversion of sewage flows permitted by the previous subparagraph shall be subject to the following additional conditions:

(1) The volume of West Whiteland's Sewage Waste flows to West Goshen shall not on any one day fall below 225,000 GPD, excluding flows originating in West Goshen Township.

(2) All capital costs for whatever new facilities or modifications to existing West Goshen facilities required to accomplish the diversion shall be the sole responsibility of West Whiteland.

(3) Any increase in operation and maintenance costs incurred in the West Goshen facilities by reason of the aforementioned diversion of sewage flow shall be borne solely by West Whiteland. Any such increased costs shall be reasonable but shall be determined solely by West Goshen.

(4) There shall at all times be 250,000 GPD reserved for West Goshen in the shared facilities either now existing or to be constructed pursuant to this Agreement, and the additional flows from West Whiteland which may be occasioned by the aforementioned diversion to the Borough of West Chester shall not encroach upon this 250,000 GPD reservation for West Goshen.

(5) Any new construction or modification of facilities occasioned by the aforementioned diversion shall be in accordance with West Goshen's specifications, ordinances, rules and regulations, and any plans for construction,

including but not limited to the method of connection at the West Goshen facilities at the diversion line to West Chester shall be subject to approval of West Goshen prior to construction.

(6) West Whiteland shall indemnify and hold harmless West Goshen from any claims against or damages incurred by West Goshen as a result of any diversion of sewage flows and in particular as a result of any construction necessitated by any such diversion.

(7) As per the prior agreement the sewage flows from Pierce Middle School will not be counted as part of the 250,000 GPD which West Goshen may discharge into West Whiteland as referred to in §3.02(b) above.

(8) West Whiteland agrees that it shall not deliver to the West Goshen System and/or Treatment Plant any sewage waste originating outside West Whiteland Township other than from West Goshen sewage waste referred to in Section 3.02.

2. All duties and obligations of West Whiteland Authority in the aforementioned April, 1985 Agreement have been transferred and assigned to and accepted by West Whiteland.

3. It is acknowledged by all parties that the facilities contemplated by the original Agreement have been installed and constructed and are now in service.

In all other respects, the April, 1985 Sewage Treatment Agreement between the parties shall remain unchanged and in full force and effect.



ATTEST:

[Signature]

ATTEST:

L. Dean Ruell

ATTEST:

[Signature]

WEST GOSHEN SEWER AUTHORITY

BY: [Signature] 4/12/9

TOWNSHIP OF WEST GOSHEN

BY: [Signature]

TOWNSHIP OF WEST WHITELAND

BY: [Signature]

APPENDIX K

SAMPLE OLDS ORDINANCE

██████████ TOWNSHIP
██████████ COUNTY, PENNSYLVANIA
ORDINANCE - 1993-10

AN ORDINANCE OF THE BOARD OF SUPERVISORS OF ██████████
TOWNSHIP GOVERNING MUNICIPAL MANAGEMENT OF
ON-LOT SUBSURFACE SEWAGE DISPOSAL FACILITIES

AND NOW, this _____ day of _____, 1993, its is hereby ordained that Chapter 18 of the Code of Ordinances of ██████████ Township, is amended by adding thereto Part 3 governing the management of on-lot subsurface sewage disposal facilities, as follows:

§301. Title: Introduction: Purpose.

1. This section may be cited as the OLDS (On-Lot Disposal System) Management Program for ██████████ Township.
2. As mandated by the municipal codes, the Clean Streams Law (35 P.S. §691.1 to 691.1001), and the Pennsylvania Sewage Facilities Act (Act of January 24, 1966. P.L. 1535 as amended, 35 P.S. §750.1 et seq., known as Act 537), municipalities have the power and the duty to provide for adequate sewage treatment facilities and for the protection of the public health by preventing the discharge of untreated or inadequately treated sewage. The Official Sewage Facilities Plan for ██████████ Township indicates that it is necessary to formulate and implement a sewage management program to effectively prevent and abate water pollution and hazards to the public health caused by improper treatment and disposal of sewage.
3. The purpose of this Part 3 is to provide for the inspection, maintenance and rehabilitation of on-lot sewage disposal systems; to further permit the Township to intervene in situations which are public nuisances or hazards to the public health; and to establish penalties and appeal procedures necessary for the proper administration of a sewage management program.

§302. Terms and Definitions.

1. General Terms. In the interpretation of this Part, the singular shall include the plural, and the masculine shall include the feminine and the neuter.
2. Specific Terms. For the purposes of this Part, the terms used shall be construed to have the following meanings:

ACT - The Pennsylvania Sewage Facilities Act, Act of January 24, 1966, P.L. (1965) 1535, No. 537, as amended, 35 P.S. Section 750.1 et seq.

ALTERNATIVE SYSTEM - A system for the disposal of domestic waste-waters not operating below ground level but located on or near the site of the building or buildings being served (e.g. composting toilets, gray water recycling systems, incinerating toilets, spray irrigation and black water recycling systems, etc.)

AUTHORIZED AGENT - A licensed sewage enforcement officer, professional engineer or sanitarian, plumbing inspector, soils scientist, or any other qualified or licensed person who is delegated to function within the specified limits as the agent of the Board of Supervisors of [REDACTED] Township to carry out the provisions of this Ordinance.

BOARD - The Board of Supervisors of the Township of [REDACTED], [REDACTED] County, Pennsylvania.

CODES ENFORCEMENT OFFICER (hereinafter called C.E.O.) - An individual employed by the Township to administer and enforce this and other ordinances in the Township.

COMMUNITY SEWAGE SYSTEM - Any system, whether publicly or privately owned, for the collection of sewage publicly, [REDACTED] from two or more lots or uses, or two or more equivalent dwelling units, and the

treatment and/or disposal of the sewage from one or more of the lots or at any other site and which shall comply with all applicable regulations of the DER.

DER - The Department of Environmental Resources of the Commonwealth of Pennsylvania or any successor agency

DEVELOPER - Shall be defined as any person, partnership or corporation which erects or contracts to erect a building on property owned by it with the intent to sell the building to some other party upon its full or partial completion, or upon the conveyance of property on which the building is to be built.

EQUIVALENT DWELLING UNIT (EDU) - For the purpose of determining the number of lots in a subdivision or land development, that part of a multiple family dwelling, commercial, industrial, or institutional establishment with sewage flows equal to four hundred (400) gallons per day.

IMPROVED PROPERTY - Any property within the Township upon which there is erected a structure intended for continuous or periodic habitation, occupancy or use by human beings or animals and from which structure sewage shall or may be discharged.

INDIVIDUAL SEWAGE SYSTEM - Any system of piping, tanks, or other facilities serving a single lot and collecting and disposing of sewage in whole or in part into the soil or any waters of the Commonwealth of Pennsylvania or by means of conveyance to another site for final disposal.

LAND DEVELOPMENT - A land development as defined in the Pennsylvania Municipalities Planning Code, Act of July 31, 1968, P.L. 805, No. 247, as amended, 53 P.S. Section 10101 et seq.

LOT - a designated parcel, tract, or area of land established by a plat or otherwise as permitted by law and to be used, developed or built upon as a unit.

MALFUNCTION - The condition which occurs when an on-lot sewage disposal system causes pollution to the ground or surface waters, contamination of private or public drinking water supplies, nuisance problems or hazard to public health. Indications of malfunctioning systems include, but are not limited to, foul odors, lush grass growing over the system, backup of wastewater in the attached buildings, soggy ground over the system, surfacing sewage effluent flowing over the ground and occurring at any time of the year.

MANAGEMENT PROGRAM - The management program shall encompass the entire area of [REDACTED] Township serviced by sewage facilities or any other alternative system which discharges into the soils of the Township. All systems shall be operated under the jurisdiction of the [REDACTED] Township Board of Supervisors regulating the subsurface disposal and/or alternate systems, and other applicable laws of the Commonwealth of Pennsylvania.

OFFICIAL PLAN - A comprehensive plan for the provision of adequate sewage disposal systems adopted by the Township and approved by the DER in accordance with the Act and with applicable DER regulations.

ON-LOT SEWAGE DISPOSAL SYSTEM - Any sewage system disposing of sewage in whole or in part into the soil or any waters of the Commonwealth of Pennsylvania or by means of conveyance to another site for final disposal, and which is located upon the lot which it serves.

OWNER - Any person, corporation, partnership, etc. holding deed/title to lands within [REDACTED] Township.

PERSON - Any individual, association, partnership, public or private corporation whether for profit or not-for-profit, trust, estate, or other legally recognized entity. Whenever the term "person" is used in connection with any clause providing for the imposition of a fine or penalty or the ordering of action to comply with the terms of this Part, the term "person" shall include the members of an association, partnership or firm

and the officers of any public or private corporation, whether for profit or not-for-profit.

PLANNING MODULE FOR LAND DEVELOPMENT - A revision to, or exception to the revision of, the Township Official Plan submitted in connection with the request for approval of a subdivision or land development in accordance with DER regulations.

PUMPER/HAULER - Any person, company, partnership or corporation which engages in cleaning community or individual sewage systems and transports the septage cleaned from these system.

PUMPERS REPORT/RECEIPT - Form which shall be used by all licensed Pumper/Haulers to report each pumping of on-lot sewage disposal systems in the Township.

REHABILITATION - Work done to modify, alter, repair, enlarge or replace an existing on-lot sewage disposal system.

REPLACEMENT AREA - An area designated as the future location of an individual on-lot sewage system that shall be installed should the initial individual on-lot system installed or to be installed fail or otherwise become inoperable and which shall meet all the regulations of the DER and all applicable Township ordinances for an individual on-lot sewage system, and shall be protected from encroachment by an easement recorded on the Final Plan as filed with the ~~Sevier~~ County Recorder of Deeds.

SEPTAGE - The residual scum and sludge pumped from septic systems.

SEWAGE - Any substance that contains any of the waste products or excrement or other discharge from the bodies of human beings or any noxious or deleterious substance being harmful or inimical to the public health, or to animal or aquatic life or to the use of water for domestic water supply or for recreation.

SEWAGE ENFORCEMENT OFFICER (hereinafter called S.E.O.) - A person appointed by the Board to administer the provisions of this Part and authorized by the DER in accordance with "Chapter 71, Administration of Sewage Facilities Program" of "Title 25, Rules and Regulations"; to perform percolation tests, site and soil evaluation, and issue sewage permits for on-lot disposal systems.

SEWAGE FACILITIES - Any method of sewage collection, conveyance, treatment, and disposal which will prevent the discharge of untreated or inadequately treated sewage into the waters of this Commonwealth or otherwise provide for the safe and sanitary treatment of sewage.

SINGLE AND SEPARATE OWNERSHIP - The ownership of a lot by one or more persons which ownership is separate and distinct from that of any abutting or adjoining lot.

SUBDIVISION - A subdivision as defined by the Pennsylvania Municipalities Planning Code, Act of July 31, 1968, P.L. 805, No. 247, as amended, 53 P.S. Section 10101 et seq.

TOWNSHIP - Township, County, Pennsylvania.

All other definitions of words and terms used in this Part shall have the same meaning as set forth in "Chapter 73, Standards for Sewage Disposal Facilities" of "Title 25, Rules and Regulations, Department of Environmental Resources."

§303. Applicability. From the effective date of this Part, its provisions shall apply to all persons owning any property in the Township serviced by an on-lot sewage disposal system and to all persons installing or rehabilitating on-lot sewage disposal systems.

§304. Sewage Permit Requirements

1. No person shall install, construct or request bid proposals for construction or alter an individual sewage system or community sewage system or construct or request bid proposals for construction or install or occupy any building or structure for which an individual sewage system or community sewage system is to be installed without first obtaining a permit indicating that the site and the plans and specifications of such system are in compliance with the provisions of the Pennsylvania Sewage Facilities Act (hereinafter called "Act 537" or "Act") and the standards adopted pursuant to that Act.
2. No system or structure designed to provide individual or community sewage disposal shall be covered from view until approval to cover the same has been given by the municipal S.E.O. If seventy-two (72) hours have elapsed, excepting Sundays and Holidays, since the S.E.O. issuing the permit received notification of completion of construction, the applicant may cover said system or structure, unless permission has been specifically refused by the S.E.O.
3. The Township may require applicants for sewage permits to notify the Township's certified S.E.O. of the schedule for construction of the permitted on-lot sewage disposal system so that inspection(s) in addition to the final inspection required by Act 537 may be scheduled and performed by the Township's certified S.E.O. at the cost of the applicant.
4. No building or occupancy permit shall be issued by the Township or its C.E.O. for a new building which will contain sewage generating facilities until a valid sewage permit has been obtained from the Township's certified S.E.O.
5. No building or occupancy permit shall be issued and no work shall begin on any alteration or conversion of any existing structure, if said alteration or conversion will result in the increase or potential increase in sewage flows from the structure, until the Township's C.E.O. and the structure's owner receive from the Township's S.E.O. either a permit for alteration or a replacement of the existing sewage disposal system or written notification that such a permit will not be required. In accordance with Act 537

73 regulations, the certified S.E.O. shall determine whether the proposed alteration or conversion of the structure will result in increased sewage flows.

6. Sewage permits may be issued only by a certified S.E.O. employed by the Township for that express purpose. The DER shall be notified by the Township as to the identity of their currently employed certified S.E.O.

7. No sewage permit may be issued unless proof is provided the owner of record has owned the lot since May 15, 1972, or that Act 537 planning for that lot has been provided by the Township .

8. No final Act 241 approval on a subdivision plan may begin until Act 537 planning is approved by the Township.

§305. Ground Markers. Any person who shall install new or rehabilitated systems shall provide a marker or markers at ground level locating the subsurface waste disposal tank and other important components of the system requiring periodic inspection and maintenance. Requirements for marker types and locations will be determined by the Township's S.E.O. In addition, a riser or access hatch shall be constructed so as to enable easy access to the waste disposal tank, and prevent odors from escaping and to prevent children from removing the hatch. Accessibility for visual inspection and maintenance shall be provided in the drainage fields via four (4) inch vertical, non-perforated PVC pipe connected directly to the drain tile at a minimum of four (4) locations in the drainage field. If not installed by the Township or its Authorized Agent, such installation shall be subject to its approval.

§306. Replacement Areas.

1. Requirements

A. After the effective date of this Ordinance, a Replacement Area for an individual on-lot sewage system shall be required for all lots or lots to be created which are not serviced or to be serviced by a community sewage system.

for installation of an individual on-lot sewage system has not been issued. Lots existing prior to the effective date of this Part shall be exempt from the requirements of this Section.

B. The Replacement Area provided shall comply with the Act and with all regulations issued by the DER as incorporated into this Part concerning individual on-lot sewage systems, including isolation distances, and with the terms of this Part and any other applicable Township ordinances.

2. Identification of Replacement Area

A. Each Applicant who shall submit a plan for the subdivision or development of land or who shall apply for a permit for the installation of an individual on-lot sewage system, or who shall request approval of a Planning Module for Land Development or the adoption of a revision, exception to revision, or supplement to the Official Plan shall demonstrate to the satisfaction of the S.E.O. that a suitable area exists on the lot or on each lot to be created for an initial individual on-lot sewage system and for the Replacement Area. The S.E.O. shall perform or observe all tests required for the location of an individual on-lot sewage system to confirm the suitability of the Replacement Area. Allowance of open land for the Replacement Area without testing performed or observed by the S.E.O. shall not constitute compliance with the requirements of this Section.

B. The location of the initial individual on-lot sewage system and the Replacement Area as confirmed by the S.E.O. shall be identified on the plot plans and diagrams submitted as part of the permit application.

C. If the application has been submitted as a part of an application for subdivision or land development approval or as part of a request that the Township approve a Planning Module for Land Development or amend its Official Plan, or a request for an exception to the revision of the Official Plan, the location of each initial individual on-lot sewage system and each Replacement Area shall be noted upon the plans. If the

permanent easement shall be added to the plans stating that no improvements shall be constructed upon the Replacement Area, and the deed to be recorded for each lot created as part of the subdivision or land development shall contain language reflecting this limitation.

D. Any revisions to a permit or plan affecting a Replacement Area which previously has been approved pursuant to the provisions of this Ordinance shall be reviewed for approval by the Board or its authorized representative.

3. Construction Restrictions

A. The easement for the Replacement Area noted upon the Plan and recorded with the ██████████ County Recorder of Deeds shall state that no permanent or temporary improvements of any character, other than shallow-rooted plant matter, shall be constructed upon the Replacement Area.

B. This provision shall be enforced by the Township unless the person who desires to construct such improvements shall demonstrate to the satisfaction of the S.E.O. that an alternate Replacement Area which complies with all applicable regulations of the DER, this ordinance and all other applicable Township ordinances, exists upon the lot. If such an alternate Replacement Area shall be identified, the alternate Replacement Area may be considered to be the Replacement Area required by this ordinance and shall be designated as the Replacement Area. The newly designated Replacement Area shall thereafter be considered the Replacement Area for the purposes of this ordinance.

4. Relief from Replacement Area Requirement

A. If any lot held in single and separate ownership as of the effective date of this ordinance does not contain land suitable for a Replacement Area, the Applicant submitting a Land Development Plan or a Planning Module for Land Development or desiring to install an individual on-lot sewage system may request that the Board grant an exception to the requirement of providing a Replacement Area. The Applicant for such an exception shall present credible evidence to the Board demonstrating (1) that

the lot was held in single and separate ownership on the effective date of this ordinance; (b) the size of the lot; (c) inability of the applicant to acquire adjacent land or the unsuitability of adjacent land which might be able to be acquired; and (d) the testing conducted to determine that the lot is not suitable to provide a Replacement Area.

B. At all times the burden to present credible evidence and the burden of persuasion shall be upon the Applicant for an exception from the terms of this Part. In no case shall any lot be exempted from the requirements of Section IV of this Part.

§307. Inspections.

1. Any on-lot sewage disposal system may be inspected by the Township's Authorized Agent at any reasonable time as of the effective date of this Part.

2. The inspection may include a physical tour of the property, the taking of samples from surface water, wells, other ground water sources, the sampling of the contents of the sewage disposal system itself and/or the introduction of a traceable substance into the interior plumbing of the structure served to ascertain the path and ultimate destination of wastewater generated in the structure. A copy of the inspection report shall be furnished to the Owner and current resident which shall include all of the following information which is reasonably available to the individual or agency responsible for pumping the septic tank: date of inspection; name and address of system owner; description and diagram of the location of the system including location of access hatches, risers, and markers; size of tanks and disposal fields; current occupant's name and number of users; indication of any system malfunction observed; results of any and all soils and water tests; any remedial action required.

3. The Township's Authorized Agent shall have the right to enter upon land for the purposes of inspections described above. In the event that access to inspect the property is denied, the following steps shall be taken:

B. The Board may schedule a review at the next scheduled meeting of the Board, or, if the situation threatens the health or safety of the residents of the Township, the Board may commence an immediate procedure to obtain a search warrant from the District Justice.

C. Upon receipt of a search warrant to inspect the property, the Authorized Agent of the Township shall be accompanied by an officer of the County or State Police, and the inspection shall be completed in accordance with this Subsection.

D. The provisions of this Subsection for obtaining a search warrant may be waived only when the Board and its Authorized Agent have reason to believe that the sewage facilities or alternative system is malfunctioning or being operated improperly such that the situation poses an immediate and substantial safety, water pollution, or health hazard.

4. A schedule of routine inspections may be established by the Township, if necessary, to assure the proper function of the systems in the Township.

5. The Township's Authorized Agent shall inspect systems known to be, or alleged to be, malfunctioning. Should said inspections reveal that the system is **malfunctioning**, the Township shall take action to require the correction of the malfunction. If total correction is not technically or financially feasible in the opinion of the Township and a representative of the DER, action by the Owner to mitigate the malfunction shall be required.

6. There may arise geographic areas within the Township where numerous on-lot sewage disposal systems are malfunctioning. A resolution of these area wide problems may necessitate detailed planning and a Township sponsored revision to that area's Act 537 Official Sewage Facilities Plan. When a DER authorized Official Sewage Facilities Plan Revision has been undertaken by the Township, mandatory repair or replacement of individual malfunctioning sewage disposal systems within the study area may be delayed, at the discretion of the Township.

plan revision process. However, the Township may compel immediate corrective action whenever a malfunction, as determined by Township officials and the Pennsylvania DER, represents a serious public health or environmental threat.

§308. Operation.

1. Only normal domestic wastes shall be discharged into any on-lot sewage disposal system. The following shall not be discharged into the system.

A. Industrial waste.

B. Automobile oil and other non-domestic oil.

C. Toxic or hazardous substances or chemicals, including but not limited to, pesticides, disinfectants, acids, paints, paint thinners, herbicides, gasoline and other solvents.

4. Clean surface or ground water, including water from roof or cellar drains, springs, basement sump pumps and French drains.

§309. Maintenance.

1. Any person owning a building served by an on-lot sewage disposal system shall have the septic tank pumped by a qualified Pumper / Hauler after the effective date of this Part based on the following schedule.

A. Properties located in [REDACTED] Township Precinct #1: Within one (1) year of effective date of this Part

B. Properties located in [REDACTED] Township Precinct #2: Within two (2) years of effective date of this Part.

C. Properties located in [REDACTED] Township Precinct #3: Within three (3) years of effective date of this Part.

*Should be 3 years
per DER Rec
71.73(b)*

D. Properties located in [REDACTED] Township Precinct #4: Within four (4) years of effective date of this Part.

Thereafter that person shall have the tank pumped at least once every four (4) years. Receipts from the Pumper/Hauler shall be submitted to the Township as required in §309.6.

2. Any person providing a receipt or other written evidence showing that their tank had been pumped within three (3) years of the first year anniversary of the effective date of this Part, then the Township may delay that person's initial required pumping to conform to the general four (4) year frequency requirement.

3. The Township may allow septic tanks to be pumped out at less frequent intervals when the owner can demonstrate to the Township that the system can operate properly without the need for pump out for a period longer than four (4) years, but in no case shall such period extend beyond six (6) years. Such a request may be made at any time and must be in writing with all supporting documents attached. The Township, in making its determination, shall take into account the information submitted by the applicant, the sewerage permit issued by the Township S.E.O. upon installation or rehabilitation of the system and supporting documentation, reports of inspection and maintenance of the system, and other relevant information, and may conduct an on-site inspection. The applicant shall bear the cost of any inspection, surface or subsurface, and soil or wastes sampling conducted for the purposes of evaluating the request. The applicant shall receive a decision within sixty (60) days of accumulation of all necessary information by the Township.

*DER says
1/3 full or
solids.
71.73*

4. The required pumping frequency may be increased at the discretion of the Authorized Agent if the septic tank is undersized, if solids buildup in the tank is above average, if the hydraulic load on the system increases significantly above average, if a

garbage grinder is used in the building, if the system malfunctions or for other good cause shown.

5. Each time a septic tank or other subsurface waste disposal system tank is pumped out, the Township, its Authorized Agent, or a private septage Pumper/Hauler, whichever provides the service, shall provide to the owner of the sub-surface waste disposal system a signed Pumpers Report/Receipt containing at a minimum the following information:

- A. Date of pumping.
- B. Name and address of system owner.
- C. Address of tank's location, if different from owner's.
- D. Description and diagram of the location of the tank, including the location of any markers, risers, and access hatches and size of the tank.
- D. *Condition of Baffles.*
- E. The date existing system was installed.
- F. Last date of pump out.
- G. List of other maintenance performed.
- H. Any indications of system malfunction observed.
- I. Amount of septage or other solid or semi-solid material removed.
- J. List of recommendations.
- K. Destination of the septage (name of the treatment facility).

6. Upon completion of each required pumping, the Township, its Authorized Agent, or a private septage waste hauler, shall fill out and submit a Pumper Report/Receipt, copies of which shall be provided by the Township to all licensed Pumpers/Haulers. The Township's Authorized Agent, or a private septage Pumper/Hauler shall provide one copy of the Pumper's Report/Receipt to the Owner and one copy to the Township. Copies must be received at the Township's business office within thirty (30) days of the date of pumping. The Pumper's Report/Receipt will include verification that the baffles in the septic tank have been inspected and found to be in good working order.

7. Any person owning a building served by an alternative system or on-lot sewage disposal system which contains an aerobic treatment tank shall follow the following:

and maintenance recommendations of the equipment manufacturer. A copy of the manufacturer's recommendations and a copy of the service agreement shall be submitted to the Township within six (6) months of the effective date of this Ordinance. Thereafter, service receipts shall be submitted to the Township at the intervals **specified** by the manufacturer's recommendations. In no case may the service or pumping intervals exceed those for those required for septic tanks.

8. Any person owning a building served by a cesspool or dry well shall have that system pumped according to the schedule prescribed for septic tanks in §309.1.

9. The Township may require additional maintenance activity as needed including, but not necessarily limited to, cleaning and unclogging of piping, servicing and the repair of mechanical equipment, leveling of distribution boxes, tanks and lines, removal of obstructing roots or trees, the diversion of surface water away from the disposal area, etc. Repair permits issued by the certified S.E.O. must be secured for these activities.

§310. System Rehabilitation.

1. No person shall operate and maintain an on-lot sewage disposal system in such a manner that it malfunctions. All liquid wastes, including kitchen and laundry wastes and water softener backwash, shall be discharged to a treatment tank. No sewage system shall discharge untreated or partially treated sewage to the surface of the ground or into the waters of the Commonwealth of Pennsylvania unless a permit to discharge has been obtained from the DER.

2. The Township shall issue a written notice of violation to any person who is the owner of a property in the Township which is found to be served by a malfunctioning on-lot sewage disposal system or which is discharging raw or partially treated sewage without a permit.

3. Within seven (7) days of notification by the Township that a malfunction has been identified, the Owner shall make application to the Township's certified S.E.O. for a permit to repair or replace the malfunctioning system.

notification by the Township, construction of the permitted repair or replacement shall commence. Within sixty (60) days of the original notification by the Township, the construction shall be completed unless seasonal or unique conditions mandate a longer period, in which case the Township shall set an extended completion date.

4. The Township's certified S.E.O. shall have the authority to require the repair of any malfunction by the following methods: cleaning, repair or replacement of components of the existing system, adding capacity or otherwise altering or replacing the system's treatment tank, expanding the existing disposal area, replacing the existing disposal area, replacing a gravity distribution system with a pressurized system, replacing the system with a holding tank, other alternatives as appropriate for the specific site.

5. In lieu of, or in combination with, the remedies described in §310.4, the S.E.O. may require the installation of water conservation equipment and the institution of water conservation practices in structures served. Water using devices and appliances in the structure may be required to be retrofitted with water saving appurtenances or they may be required to be replaced by water conserving devices and appliances.

Wastewater generation in the structure may also be reduced by requiring changes in water usage patterns in the structure served. The use of laundry facilities may be limited to one load per day or discontinued altogether, etc.

6. In the event that the rehabilitation measures in §310.1 through §310.5 are not feasible or do not prove effective, the Township may require the Owner to apply for a permit to construct a holding tank in accordance with Township ordinance. Upon receipt of said permit the Owner shall complete construction of the system within thirty (30) days.

7. Should none of the remedies described above prove totally effective in eliminating the malfunction of an existing on-lot sewage disposal system, the Owner is not absolved of responsibility for that malfunction. The Township may require whatever action is necessary to lessen or mitigate the malfunction to the extent that it feels necessary.

§311. Liens. The Township, upon written notice from the S.E.O. that an imminent health hazard exists due to failure of a property owner to maintain, repair or replace an on-lot sewage disposal system as provided under the terms of this Part, shall have the authority to perform or contract to have performed, the work required by the S.E.O. The Owner shall be charged for the work performed and, if necessary, a lien shall be entered therefore in accordance with law.

§312. Disposal of Septage.

1. All septage Pumper/Haulers operating within the Township shall be licensed with the Township and shall comply with all reporting requirements established by the Township.
2. All septage originating within the municipal sewage management district shall be disposed of at sites or facilities approved by the DER. Approved sites or facilities shall include the following: septage treatment facilities, wastewater treatment plants, composting sites, and approved farm lands.
3. Septage Pumper/Haulers operating within the Township shall operate in a manner consistent with the provisions of the Pennsylvania Solid Waste Management Act (Act 97 of 1980, 35 P. S. §§6018.101-6018.1003). Any septage Pumper/Hauler who violates any of the provisions of this Part or regulations of [REDACTED] Township, the conditions of its State permit, or of any State or local law governing its operation, shall, upon conviction thereof, be sentenced to pay a fine not exceeding one thousand dollars (\$1,000.00) and costs, and in default of payment thereof, shall be subject to imprisonment for a term not to exceed thirty (30) days. If any pumper/hauler shall have been convicted on two (2) occasions of any violation of this Part, or for violating the conditions of its State permit, or of any State or local law governing its operation, the Board shall have the power to suspend said pumper/hauler from operating within the Township for a period of not less than six (6) months or more than two (2) years for each violation, as determined by the Township. Each day the violation continues shall constitute a separate offense

meeting. If the appeal is received within fourteen (14) days of the next regularly scheduled meeting, the appeal shall be heard at the subsequent meeting. The Township shall thereafter affirm, modify, or reverse the aforesaid decision. The hearing may be postponed for a good cause shown by the appellant or the Township. Additional evidence may be introduced at the hearing provided that it is submitted with the written notice of appeal.

3. A decision shall be rendered in writing within forty-five (45) days of the date of the hearing. If a decision is not rendered within forty-five (45) days, the release sought by the appellant shall be deemed granted.

§315. Penalties. Any person failing to comply with any provisions of this Part shall be subject to a fine of not less than one hundred dollars (\$100) and costs, and not more than three hundred dollars (\$300) and costs, or in default thereof shall be confined in the county jail for a period of not more than thirty (30) days. Each day of noncompliance shall constitute a separate offense.

§316. Repealer. If any section or clause of this Part shall be adjudged invalid, such adjudication shall not affect the validity of the remaining provisions which shall be deemed severable therefrom.

BY THE [REDACTED] TOWNSHIP
BOARD OF SUPERVISORS

ATTEST: _____
[REDACTED], Secretary

By: _____
[REDACTED], Chairman

~~West Hanover~~ Township
Septic Tank Pumper's Report

9/93

1. Date of Pumping / / 2. Treatment System: Septic Tank Aerobic Tank Cesspool Dry Well

3. System Type: Sand Mound In Ground

4. Property Owner's Name

Address

City State Zip Code

5. Address of Tank Location

(if different than #4)

City State Zip Code

6. Description and diagram of the location of the tank (use box below), including the location of any markers, risers, and access hatches and size of the tank. Description

7. Date system was installed (if not known, approximate date) / /

8. Date of last pump out (if not known, approximate date) / /

9. List of other maintenance performed.

- ☐ Baffle Replacement
- ☐ Extensions (riser rings)
- ☐ Inspection Ports
- ☐ Snaked the Line
- ☐ Other

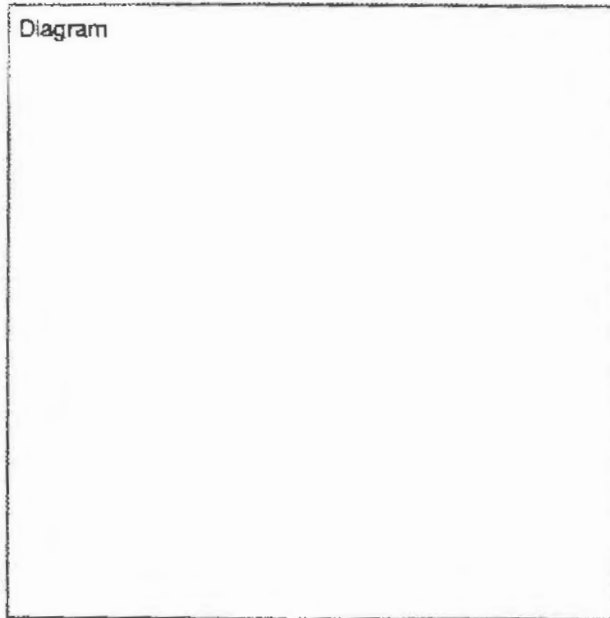
10. Check any of the following conditions observed.

- ☐ High Water Level in Tank
- ☐ Wet Areas Near System or Site
- ☐ Noticeable Odors
- ☐ Sewer Backup into House
- ☐ Abundant Grass Growth Near System or Site
- ☐ Backflush of Water from Absorption Area to Tank
- ☐ Other

11. Amount of septage or other solid or semi-solid material removed.

- ☐ 500 Gallon Tank ☐ 1750 Gallon Tank
- ☐ 750 Gallon Tank ☐ 2000 Gallon Tank
- ☐ 1000 Gallon Tank ☐ 2250 Gallon Tank
- ☐ 1250 Gallon Tank ☐ 2500 Gallon Tank
- ☐ 1500 Gallon Tank ☐ Other

Diagram



12. Recommendations

13. Destination of the septage (name of treatment facility, include address if private property)

DER Permit #

Signature of Pumper Company

NOTICE - Completion of this report is required by West Hanover Township for information purposes only and shall not be deemed to be any certification of conditions by the Pumper.

A copy of this report is to be submitted to the property owner (listed above) and a copy mailed within thirty (30) days after pumping to:

~~West Hanover~~ Township, 7171 Allentown Boulevard, Harrisburg, PA 17112

APPENDIX L

NPDES PERMIT REQUIREMENTS

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER MANAGEMENT PROGRAMAUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEMSEWAGE NPDES PERMIT NO. PA 0028584

In compliance with the provisions of the Clean Water Act, 33 U.S.C. Section 1251 et seq. (the "Act") and
Pennsylvania's Clean Streams Law, as amended, 35 P.S. Section 691.1 et seq.,
West Goshen Sewer Authority

is authorized to discharge from a facility located at

348 South Concord Road West Chester, PA 19380Municipality West Goshen TownshipCounty Chester County

to receiving waters named

Goose Creek

in accordance with effluent limitations, monitoring requirements and other conditions set forth in Parts A, B,
and C hereof.

THIS PERMIT SHALL EXPIRE AT MIDNIGHT, 01/04/01

The authority granted by this permit is subject to the following further qualifications:

1. If there is a conflict between the application, its supporting documents and/or amendments and the terms and conditions of this permit, the terms and conditions shall apply.
2. Failure to comply with the terms, conditions, or effluent limitations of this permit is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.
3. Complete application for renewal of this permit, or notification of intent to cease discharging by the expiration date, must be submitted to the Department at least 180 days prior to the above expiration date (unless permission has been granted by the Department for submission at a later date), using the appropriate NPDES permit application form.

In the event that a timely and complete application for renewal has been submitted and the Department is unable, through no fault of the permittee, to reissue the permit before the above expiration date, the terms and conditions of this permit, including submission of the Discharge Monitoring Reports, will be automatically continued and will remain fully effective and enforceable pending the grant or denial of the application for permit renewal.

4. This NPDES permit does not constitute authorization to construct or make modifications to wastewater treatment facilities necessary to meet the terms and conditions of this permit.

DATE PERMIT ISSUED 01/04/96ISSUED BY Joseph R. Fierle

DATE PERMIT AMENDMENT ISSUED _____

TITLE: Water Management Program ManagerDATE EFFECTIVE 02/01/96

PART A

Page 2 of 4
PA 002084

DISCHARGE LIMITATIONS AND MONITORING REQUIREMENTS FOR DISCHARGE 001 and 002 combined
SITED AT LATITUDE 39°56'43", LONGITUDE 75°34'35"

During the period beginning at issuance and lasting through expiration, the Permittee is authorized to discharge effluent from the wastewater treatment facility shall not exceed the average annual flow of effluent discharged from the wastewater treatment facility shall not exceed 4.5 million gallons per day.

The quality of effluent shall be limited at all times as specified in Footnote (3) and as follows:

DISCHARGE PARAMETER	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS				
	CONCENTRATIONS (mg/l)				MEASUREMENT FREQUENCY	SAMPLE TYPE			
	MASS UNITS (lbs/day)	AVERAGE MONTHLY	AVERAGE WEEKLY	AVERAGE ANNUAL			INSTAN- TANEOUS MAXIMUM		
TOTAL SOLIDS						Restricted			
	563	863		15	23	30	2/Week	24 Hour Comp.	
	938	1426		25	38	50	2/Week	24 Hour Comp.	
	1126	1689		30	45	60	2/Week	24 Hour Comp.	
	75			2		4	2/Week	24 Hour Comp.	
COLIFORM TO 4-30	225			6		12	2/Week	24 Hour Comp.	
					See Footnote (2)			Grab	
					Same Limits as in Footnote (2) for Period 5-1 to 9-30			2/Week	Grab
DISSOLVED OXYGEN *								Daily	Grab

Within limits of 6 to 9 Standard Units at all times

1. Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): Outfall 001 for all parameters except Fecal Coliform and Total Residual Chlorine which shall be sampled and recorded for Outfall 001 and Outfall 002. Daily plant flow shall be recorded through the existing Parishall Flume metering arrangement.

* Instantaneous Minimum concentrations shall be recorded along with monthly average on the District Monitoring Report.

I. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS FOR DISCHARGE 001 and 002 combined
LOCATED AT LATITUDE 39°56'43", LONGITUDE 75°34'35"

- A. The Permittee is authorized to discharge during the period from issuance until completion of third year of the permit
- B. The average annual flow of effluent discharged from the wastewater treatment facility shall not exceed 4.5 million gallons per day.
- C. The quality of effluent shall be limited at all times as specified in Footnote (3) and as follows:

DISCHARGE PARAMETER	DISCHARGE LIMITATIONS						MONITORING REQUIREMENTS		
	MASS UNITS (lbs/day)		CONCENTRATIONS (mg/l)				MEASUREMENT FREQUENCY	SAMPLE TYPE	24 HOUR RESPONSE UNDER PART A, T.L.D
	AVERAGE MONTHLY	MAXIMUM DAILY	AVERAGE ANNUAL	AVERAGE MONTHLY	MAXIMUM DAILY	INSTAN- TANEOUS MAXIMUM			
Copper, Total *	3.4	6.8		0.09	0.18	0.23	1/Week	24 Hour Comp.	
Cyanide, Free **				Monitor/ Report	Monitor/ Report		1/Quarter	24 Hour Comp.	

FOOTNOTES: 1. Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): Outfall 001

* See Other Requirement Nos. 6 and 12

** See Other Requirement Nos. 6 and 7

PART A

Page 21 of
PA 002894

PERMIT LIMITATIONS AND MONITORING REQUIREMENTS FOR DISCHARGE 001 and 002 combined
LOCATED AT LATITUDE 39°56'43", LONGITUDE 75°34'35"

The Permittee is authorized to discharge during the period from fourth year of the permit until expiration of the average annual flow of effluent discharged from the wastewater treatment facility shall not exceed 4.5 million gallons per day.

The quality of effluent shall be limited at all times as specified in Footnote (3) and as follows:

DISCHARGE PARAMETER	DISCHARGE LIMITATIONS			MONITORING REQUIREMENTS		
	MASS UNITS (lbs/day)		CONCENTRATIONS (mg/l)		MEASUREMENT FREQUENCY	SAMPLE TYPE
	AVERAGE MONTHLY	MAXIMUM DAILY	AVERAGE MONTHLY	MAXIMUM DAILY		
Total *	0.45	0.9	0.012 Monitor/ Report	0.024 Monitor/ Report	1/Week	24 Hour Comp.
Free **					1/Quarter	24 Hour Comp.

1. Samples taken in compliance with the monitoring requirements specified above shall be taken at following location(s): Outfall 001

* See Other Requirement Nos. 6 and 12

** See Other Requirement Nos. 6 and 7

I. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS FOR DISCHARGE 001 and 002
LOCATED AT LATITUDE 39°56'43", LONGITUDE 75°34'35"

- A. The Permittee is authorized to discharge during the period from issuance until completion of six months of the permit.
- B. The average annual flow of effluent discharged from the wastewater treatment facility shall not exceed 4.5 million gallons per day.
- C. The quality of effluent shall be limited at all times as specified in Footnote (3) and as follows:

DISCHARGE PARAMETER	DISCHARGE LIMITATIONS						MONITORING REQUIREMENTS		
	MASS UNITS (lbs/day)		CONCENTRATIONS (mg/l)				MEASUREMENT FREQUENCY	SAMPLE TYPE	24 HOUR REPORT UNDER PART A.11.D
	AVERAGE MONTHLY	MAXIMUM DAILY	AVERAGE ANNUAL	AVERAGE MONTHLY	MAXIMUM DAILY	INSTAN- TANEOUS MAXIMUM			
TOTAL RESIDUAL CHLORINE				0.5		1.7	Daily	Grab	

FOOTNOTES: 1. Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): Outfall 001 and Outfall 002

* See Other Requirement Nos. 8 and 13

(RN) 12.1

PART A

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS FOR DISCHARGE 001 and 002
LOCATED AT LATITUDE 39°56'43", LONGITUDE 75°34'35"

- The Permittee is authorized to discharge during the period from seventh month of the permit until expiration of the average annual flow of effluent discharged from the wastewater treatment facility shall not exceed 4.5 million gallons per day.
- The quality of effluent shall be limited at all times as specified in Footnote (3) and as follows:

DISCHARGE PARAMETER	DISCHARGE LIMITATIONS			MONITORING REQUIREMENTS			
	MASS UNITS (lbs/day)		CONCENTRATIONS (mg/l)		MEASUREMENT FREQUENCY	SAMPLE TYPE	24-HR RUN PACK
	AVERAGE MONTHLY	MAXIMUM DAILY	AVERAGE MONTHLY	MAXIMUM DAILY			
1. RESIDUAL * & **			0.02	0.07	Daily	Grab	

1. Samples taken in compliance with the monitoring requirements specified above shall be taken following location(s): Outfall 001 and Outfall 002

* See Other Requirement Nos. 8 and 13

** For computing averages for DMR reporting and for determining permit compliance, all "less than" sample results shall be counted as zero values. If more sensitive test methods become available, the Department may modify the permit to require use of the more sensitive method.

APPENDIX M

OTHER CORRESPONDENCE

West Goshen Township
Workshop Session for Act 537 Plan
Board of Supervisors
Planning Commission
Sewer Authority
May 21, 1996
8:00 P.M.

- 1) Presentation of Act 537 Plan by Max Stoner,
Glacé Associates, Inc. followed by discussion
of Plan. (Attached is a copy of Max's 4/29/96
letter).

A D J O U R N

GLACE ASSOCIATES, INC.

CONSULTING ENGINEERS
3705 Trindle Road
Camp Hill PA 17011

717-731-1579 • FAX 717-731-1348

April 29, 1996

File: 89036-A

Mrs. Patricia L. Guernsey, Township Manager
West Goshen Township
1035 Paoli Pike
West Chester, PA 19380

Dear Pat:

Re: Workshop Session - Act 537 Plan

Prior to the public hearing on the Act 537 Plan which is required, it will necessary to hold a workshop session between the Sewer Authority, the Township Board of Supervisors and Township Planning Commission members. After our April 24, 1996 meeting with Westtown Township, Bob White and Ed Meakim selected Tuesday, May 21 at ~~7:00~~ 8:00 p.m. at the Township Building as the next best available date to hold a meeting. This will be a good time to hold the meeting as it appears that another meeting will be held on May 7 with financial advisors and to review the language for the intermunicipal agreements that will be utilized for all parties.

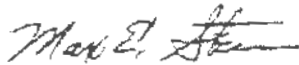
Would you please check and make sure that the May 21st date and time are suitable for the various parties involved. Since it is anticipated there will be a quorum of Supervisors, Authority, and Planning Commission members, it may be necessary to advertise the workshop meeting. However, it will be primarily an information gathering meeting with suggestions and recommendations to be further evaluated. Depending on the municipality and often times their Solicitor, I will let the advertising of the meeting decision up to you. It will probably not be necessary for Ross Unruh or Ron Nagle to attend this meeting as there will be very few, if any, legal issues being discussed that evening. Their primary input will be into the drafting of the intermunicipal agreements; the financial coordination of the project and the adoption of the Act 537 Ordinance as well as the On-lot Sewage Management Ordinance.

GLAZ ASSOCIATES, INC.

Mrs. Patricia L. Guernsey, Township Manager
West Goshen Township
April 29, 1996
Page 2

Thank you for taking care of formalizing the meeting that will hopefully be held on May 21.

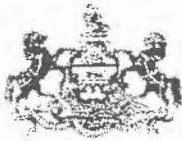
Very truly yours,



MAX E. STONER, P.E.
President

MES/dss

cc: West Goshen Sewer Authority
West Goshen Township Sewage Treatment Plant. John M. Scott,
Plant Superintendent
Ross A. Unruh, Esq.
Ronald C. Nagle, Esq.



COMMONWEALTH OF PENNSYLVANIA
PENNSYLVANIA HISTORICAL AND MUSEUM COMMISSION
THIRD AND NORTH STREETS, BOX 1026
HARRISBURG, PENNSYLVANIA 17108-1026

July 1, 1996

Glace Associates, Inc.
Attn: Alison J. Shuler
3705 Trindle Road
Camp Hill, PA 17011

Re: ER# 95-2135-029-A
Proposed Wastewater Treatment
Alternates, West Chester & West
Goshen Township, Chester County

TO EXPEDITE REVIEW USE
BHP REFERENCE NUMBER

Dear Ms. Shuler:

The Bureau for Historic Preservation has reviewed the above named project under the authority of the Environmental Rights amendment, Article 1, Section 27 of the Pennsylvania Constitution and the Pennsylvania History Code, 37 Pa. Cons. Stat. Section 500 et seq. (1988). This review includes comments on the project's potential effect on both historic and archaeological resources. Our comment are as follows:

A significant prehistoric archaeological site is located in the area of two of the project alternatives. This site, 36 Ch 283, is a rare Late Woodland village site which was identified in 1992. It is our understanding that the site area is currently protected by conservation easements held by the Brandywine Conservancy and/or Natural Lands Trust. The proposed outfall discharge associated with Alternate 2 and the proposed wastewater treatment facility and discharge associated with Alternate 5 may have adverse effects on the protected site area. We strongly recommend that these project alternatives be dropped from consideration.

In our opinion, Alternates 1, 3, and 4 will have no effect on archaeological resources.

There may be resources in the project area which are eligible for the National Register of Historic Places. Unless structures over 50 years of age will be demolished or altered in any way, the activity described in your proposal will have no effect on such resources and your responsibility for consultation with this office is complete.

If you need further information concerning archaeological resources please contact Mark Shaffer at (717) 772-0924. If you

need further information concerning historic structures please
contact Gretchen Varnell at (717) 787-9121.

Sincerely,

A handwritten signature in cursive script, appearing to read "Kurt W. Carr".

Kurt W. Carr, Chief
Division of Archaeology &
Protection

cc: Michael G. Clarke, Natural Lands Trust
David D. Shields, Brandywine Conservancy
Jane L.S. Davidson, County of Chester
KWC/ms

PENNSYLVANIA BIOLOGICAL RESOURCE

MANAGEMENT AGENCIES

The statutory authority for Pennsylvania's animals and plants resides with three separate agencies. The Pennsylvania Department of Conservation and Natural Resources has the responsibility for management of the Commonwealth's native wild plants. The Pennsylvania Fish and Boat Commission is responsible for management of fish, reptiles, amphibians and aquatic organisms within the Commonwealth. The Pennsylvania Game Commission has the responsibility for managing the state's wild birds and mammals.

For information on current species status, please consult the appropriate agency. Requests for information should be directed to:

PLANTS and PNDI - general Plant Program Manager
PA Department of Conservation and Natural Resources
Bureau of Forestry
Forest Advisory Services
P.O. Box 8552
Harrisburg, PA 17105-8552
(717) 787-3444

**FISH, REPTILES,
AMPHIBIANS,
AQUATIC ORGANISMS** Endangered Species & Herpetology Coordinator
Pennsylvania Fish & Boat Commission
Bureau of Fisheries and Engineering
450 Robinson Lane
Bellefonte, PA 16823
(814) 359-5113

BIRDS and MAMMALS Pennsylvania Game Commission
Bureau of Wildlife Management
2001 Elmerton Avenue
Harrisburg, PA 17110-9797
(717) 787-5529

For information on species listed under the federal Endangered Species Act of 1973 occurring in Pennsylvania, contact:

Endangered Species Biologist
U.S. Fish and Wildlife Service
315 South Allen Street, Suite 322
State College, PA 16801
(814) 234-4090

PENNSYLVANIA NATURAL DIVERSITY INVENTORY

REVIEW RESPONSE

REQUESTER: Ms. Alison Shuler, Consulting Engineer
Glace Associates, Inc.
3705 Trindle Road
Camp Hill, PA 17011

PROJECT: Five Sewage Treatment Facilities, Alternative Plans, West Chester Area, Chester County

REFERENCE NO: 004435

QUADRANGLE: Unionville

In response to your request of an area was reviewed for the presence of natural resources of special concern using the Pennsylvania Natural Diversity Inventory (PNDI) information system. We do not anticipate any impact on rare, threatened or endangered species at this location.



Edward Dix, PNDI Staff

9-19-96
Date

PNDI is a site specific information system which describes significant natural resources of Pennsylvania. This system includes data descriptive of plant and animal species of special concern, exemplary natural communities and unique geological features. PNDI is a cooperative project of the Department of Conservation and Natural Resources, The Nature Conservancy and the Western Pennsylvania Conservancy. This response represents the most up-to-date summary of the PNDI data files. However, an absence of recorded information does not necessarily imply actual conditions on-site. A field survey of any site may reveal previously unreported populations. PNDI is partially funded through contributions to the Wild Resource Conservation Fund.

Be advised that legal authority for Pennsylvania's biological resources resides with three administrative agencies. The enclosure titled PNDI Management Agencies, outlines which species groups are managed by these agencies. If you have questions concerning this response or the PNDI system, please contact our office at 717/787-3444 or write:

DCNR - Bureau of Forestry - PNDI
P.O. Box 8552
Harrisburg, PA 17105-8552



Glance Associates, Inc.

CONSULTING ENGINEERS

3703 TRINDLE ROAD

CAMP HILL, PENNSYLVANIA 17011

717-731-1579

FAX 717-731-1348

April 9, 1992
File: 89036.A

Mr. Ernie B. McNeely, Borough Manager/Secretary
West Chester Borough
Gay & Adams Streets
West Chester, Pennsylvania 19380

Dear Mr. McNeely:

Re: Availability Of Wastewater Treatment Capacity
In West Chester Borough's Facilities

Glance Associates, Inc. has been directed to update the West Goshen Township Act 537 Official Wastewater Facilities Plan by the West Goshen Board of Supervisors and the West Goshen Sewer Authority. As part of the evaluation of the need and costs for additional wastewater treatment capacity, we are contacting the Borough to determine if there is any reserve wastewater treatment capacity at either the Goose Creek or the Taylor Run Plants. If there is treatment plant capacity available at these plants, it would be appreciated if the Borough could provide us with the following information:

1. The reserve treatment plant capacity available for West Goshen Township at each plant.
2. Would the Borough be willing to enter into either a short-term or long-term agreement with the Township to provide reserve treatment plant capacity?
3. What would the approximate cost be on a per gallon basis for the reserve treatment plant capacity at each plant?
4. What restrictions, if any, would the Borough place on the use of the treatment plant capacity if the Township should elect to utilize capacity at the existing Borough treatment facilities?

Thank you for providing the above information. If you have any questions or comments, do not hesitate to contact our office.

Sincerely,

MAX E. STONER, P.E.

President

MES/lcb

cc: West Goshen Township, Patricia L. Guernsey, Township Manager
West Goshen Sewer Authority
West Goshen Township, John M. Scott, Superintendent

COUNCIL
MITCHELL G. CRANE, Esq.
President
ELEANOR E. LOPER
Vice President
LY H. OTT, JR.
MARY D. ZIMMERMAN
JAMES E. L'HEUREUX
JANET M. COLLITON, Esq.
JAMES W. RUE



Borough of West Chester
Pennsylvania
OFFICE OF BOROUGH COUNCIL

MUNICIPAL BUILDING
401 EAST GAY STREET
WEST CHESTER, PA 19380

(215) 692-7374

THOMAS A. CHAMBERS
Mayor

ERNIE B. McNEELY
Manager-Secretary

August 19, 1992

Mr. Max E. Stoner, P.E.
President
Glacc Associates
3705 Trindle Road
Camp Hill, PA 17011

Dear Mr. Stoner:

I am forwarding this correspondence in reply to your inquiry about whether West Chester Borough has available sewer capacity that could be allocated for use by West Goshen Township.

I am sorry that it has taken so long to generate a reply however the answer had to depend on how the Pennsylvania Dept. of Environmental Resources reacted to the Borough's recent negotiations to resell capacity to another township. As you are aware, West Chester currently provides sewer capacity to East Bradford Township through an inter-municipal agreement however, DER has now taken the position that the Borough cannot sell any additional capacity without performing some facilities planning studies for both plants. Council in the next few months will be considering a proposal from the Borough's sewer engineer to perform the required study however as you would expect, the study will take some time to complete.

As to physical capacity, the Borough's Goose Creek Wastewater Plant is currently operating well under capacity due to an industrial plant closing. This wastewater plant could have available capacity of several hundred thousand gallons per day but the Borough will have to first satisfy the DER planning requirements. Furthermore, any agreement of sale could also have to involve Wyeth Ayerst Laboratories Company which has a substantial amount of reserved capacity at this plant.

I am sorry we cannot provide a more definitive answer to your inquiry at this point. If you have any questions, please feel free to contact me.

Very truly yours,

A handwritten signature in dark ink, appearing to read "Ernie B. McNeely".

Ernie B. McNeely
Borough Manager

EBM/wep
cc: Council
Mayor
K. Scott

WESTTOWN TOWNSHIP BOARD OF SUPERVISORS MEETING
THURSDAY, AUGUST 17, 1995 - 7:30 P.M.
1014 S. CONCORD ROAD, WESTTOWN

West Goshen Township

Robert Lambert, Supv.
Edward Meakim, Supv.
Pat Guernsey, Twp.Mgr.
Robert Brown, Sew.Auth.
James McLearn, Sew.Auth.
Louis Reed, Sew.Auth.
John Scott, Plant Mgr.

West Chester Borough

Kevin Oaks, Env.Mgr.

Westtown Township

A. Pierson Sill, Supv.
L. Charles Scipione, Supv.
A. C. Skiles, Twp. Eng.
Evelyn L. Groff, Twp. Secy

Audience: JPI, Inc. representatives: Thomas Oeste, Esquire; David Pennoni, P.E. and John Wallenstrom; Joseph Kravitz, Michael Manieri, David Kelly, P.E.
Westwood residents

Mr. Sill reviewed the minutes of the June 29 meeting and asked for an update of outstanding items.

Mr. Oaks: DEP Donna Ulan, working with WC on its Act 537, said there can be no temporary agreement for capacity without a long term arrangement. West Goshen expansion plan needs to be logged in with DEP.

Other alternatives: rerating the WC plant, take about a year.

Leasing capacity from Wyeth if company is interested, requiring plan between WT and Wyeth and change of 537.

Mr. Lambert: Engineer's report not complete, soonest offer for capacity 1999-2000, cost of plant \$17-20 million.

Ms. Guernsey: NPDES renewal requires reduction of copper content below that of drinking water. Astronomical cost, not even certain have knowledge or means to accomplish it. Township is appealing.

Mr. Lambert: Dismayed by this latest development, questioning if WG even wants to consider expanding plant. Needs much discussion.

Mr. Sill: This makes the diversion even more necessary. Requests WG send letter to WT stating its willingness for construction of a set-up to divert WT sewage to WC. Visualizes sending sewage immediately to WC.

Mr. Lambert: WG will explore the diversion project with WT.

Ms. Guernsey: Agreement with WG does not permit taking out committed capacity. WG's first priority at this time is fighting the NPDES renewal. It also needs figures for the plant expansion before making a final decision.

There was considerable discussion among all parties about financial impact from some of the methods discussed for purchasing the capacity. Mr. Oeste said JPI, Inc. could be a vital participant in these considerations.

Mr. Kravitz: Asked if his 16 proposed homes could be handled.

Everyone agreed the next step is to meet with ~~Mr. Glenn~~ Glenn Stinson and his staff will be invited to attend a meeting on Thursday, September 21, 1995, 7:30 P.M., at Oakbourne Park.

The meeting was adjourned.

Respectfully submitted,

Evelyn L. Groff
Evelyn L. Groff
Township Secretary



GLACE ASSOCIATES, INC.

CONSULTING ENGINEERS
3705 Trindle Road
Camp Hill, PA 17011

717-731-1579 • FAX 717-731-1348

August 26, 1992

Mrs. Patricia L. Guernsey, Township Manager
West Goshen Township
1025 Paoli Pike
West Chester, Pennsylvania 19380

Dear Pat:

Re: Act 537 Planning
Reply From West Chester Borough

I am enclosing for your files, a copy of a letter I recently received from Ernie B. McNeely, Borough Manager of West Chester. His letter is in reply to a written request from our office last spring for sewage treatment capacity at the Borough's two treatment plants. I believe the letter is self explanatory in that the Borough cannot give West Goshen Township a definitive answer at this time in regard to the allocation of capacity for West Goshen Township's needs. Obtaining this information was necessary for the preparation of the Township's Comprehensive Act 537 Plan. This will become part of the correspondence section of the 537 Report to be submitted to the Department of Environmental Resources.

Should you have any questions in regard to this letter, do not hesitate to contact me.

Sincerely,



MAX E. STONER, P.E.
President

MES/lcb

cc: West Goshen Sewer Authority Members
West Goshen Township, John M. Scott, Plant Superintendent
Ross A. Unruh



Glance Associates, Inc.

CONSULTING ENGINEERS

3705 TRINDLE ROAD

CAMP HILL, PENNSYLVANIA 17011

717-731-1575

FAX 717-731-4348

June 10, 1992

West Goshen Sewer Authority
West Goshen Township
1025 Paoli Pike
West Chester, Pennsylvania 19380

Gentlemen:

Re: Rerating Of Sewage Treatment Plant

At a meeting held in the East Goshen Township office on May 20, 1992, Mr. Charles Rehm of the Pennsylvania Department of Environmental Resources indicated that the Department was revising its policy in regards to Department designated overload conditions at wastewater treatment plants.

In the past, the Department has considered that a treatment facility was in an overload condition when the peak three month average was over the rated design capacity of the treatment facility. At the meeting on May 20, 1992, Mr. Rehm indicated that the Department upon receipt of satisfactory data from a municipality, would likely rerate the treatment facility to have the annual average flow (the rated or design capacity) and the peak flow being numbers obtained through engineering calculations and historical operating data from the treatment facility. In this instance, it is quite possible that the 4.5 MGD capacity of the treatment facility can at least be maintained as the rated and/or design capacity instead of approximately 4.2 MGD which is the average flow taking into account the reduction for the peaking factor as previously calculated by the Department of Environmental Resources. If my understanding is correct of Mr. Rehm's statements, the Authority would ask the Department for a revision to its NPDES Permit to have two figures, one approximately 4.50 MGD (annual average flow) and the other (possibly 5.0 MGD) as a maximum peak three month average. It is quite possible that with minor modifications that the 4.50 MGD average annual flow could be increased to a higher figure.

There are several drawbacks to proceeding with this plant rerating as I can see it. If the plant rerating can be accomplished without any additional cost expended by the Authority, the additional flows are, at least in East Goshen's

Glace Associates, Inc.

West Goshen Sewer Authority
West Goshen Township
West Chester, Pennsylvania
June 10, 1992
Page Two

Agreement, allocated proportionally to each municipality's current reserve treatment capacity. Secondly, due to the increased flows to the receiving stream, Goose Creek, it is possible that more stringent effluent paramaters will be placed on the plant discharge which may require an upgrade of the treatment facilities, depending on how stringent the requirements are.

On the positive side, by pursuing this plant rerating, it is possible that the Authority/Township may postpone the anticipated expansion of the treatment facility for one or two years, depending on the economic climate and how much precipitation is received during the next several years.

This somewhat complicates the Act 537 Planning but may be a good first phase to implement to take care of the short term needs of the Township. I would like to discuss this topic at the next Authority meeting and possibly with Township Supervisors and/or Township staff at a mutually convenient time.

Sincerely,



MAX E. STONER, P.E.
President

MES/lcb

cc: West Goshen Township, Patricia L. Guernsey, Township Manager
West Goshen Township, John M. Scott, Plant Superintendent
Ross A. Unruh, Authority Solicitor
Ronald C. Nagle, Township Solicitor

COUNCIL

ITCHELL G. CRANE, Esq.
President

HELEENOR E. LOPER
Vice President

R. H. OTT, JR.

M. J. D. ZIMMERMAN

JAMES E. L'HEUREUX

WENET M. COLLITON, Esq.

JAMES W. RUE



Borough of West Chester
Pennsylvania

OFFICE OF BOROUGH COUNCIL

MUNICIPAL BUILDING
401 EAST GAY STREET
WEST CHESTER, PA 19380

(215) 692-7574

THOMAS A. CHAMBERS
Mayor

ERNE B. McNEELY
Manager-Secretary

August 19, 1992

Mr. Max E. Stoner, P.E.
President
Glace Associates
3705 Trindle Road
Camp Hill, PA 17011

Dear Mr. Stoner:

I am forwarding this correspondence in reply to your inquiry about whether West Chester Borough has available sewer capacity that could be allocated for use by West Goshen Township.

I am sorry that it has taken so long to generate a reply however the answer had to depend on how the Pennsylvania Dept. of Environmental Resources reacted to the Borough's recent negotiations to resell capacity to another township. As you are aware, West Chester currently provides sewer capacity to East Bradford Township through an inter-municipal agreement however, DER has now taken the position that the Borough cannot sell any additional capacity without performing some facilities planning studies for both plants. Council in the next few months will be considering a proposal from the Borough's sewer engineer to perform the required study however as you would expect, the study will take some time to complete.

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I am sorry we cannot provide a more definitive answer to your inquiry at this point. If you have any questions, please feel free to contact me.

Very truly yours,

A handwritten signature in dark ink, appearing to read "Ernie B. McNeely", is written over a horizontal line.

Ernie B. McNeely
Borough Manager

EBM/wep
cc: Council
Mayor
K. Scott

WESTTOWN TOWNSHIP BOARD OF SUPERVISORS MEETING
THURSDAY, AUGUST 17, 1995 - 7:30 P.M.
1014 S. CONCORD ROAD, WESTTOWN

West Goshen Township
Robert Lambert, Supv.
Edward Meakim, Supv.
Pat Guernsey, Twp.Mgr.
Robert Brown, Sew.Auth.
James McLear, Sew.Auth.
Louis Reed, Sew.Auth.
John Scott, Plant Mgr.

West Chester Borough
Kevin Oaks, Env.Mgr.

Westtown Township
A. Pierson Sill, Supv.
L. Charles Scipione, Supv.
A. C. Skiles, Twp. Eng.
Evelyn L. Groff, Twp.Secy

Audience: JPI, Inc. representatives: Thomas Oeste, Esquire; David Pennoni, P.E. and John Wallenstrom; Joseph Kravitz, Michael Manieri, David Kelly, P.E.
Westwood residents

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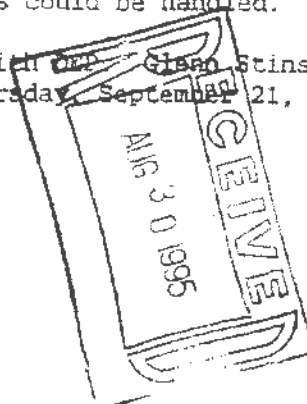
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The meeting was adjourned.

Respectfully submitted,

Evelyn L. Groff
Evelyn L. Groff
Township Secretary



EAST GOSHEN MUNICIPAL AUTHORITY
EAST GOSHEN TOWNSHIP

1580 PAOLI PIKE WEST CHESTER, PA 19380-6109

November 14, 1995

Max E. Stoner, P.E.
President
Glace Associates, Inc.
3705 Trindle Road
Camp Hill, Pa 17011

Re: Update on Sewage Treatment Needs
West Goshen Sewage Treatment Plant
Your letter of October 25, 1995

Dear Max:

East Goshen estimates a need for approximately 200,000 gallons per day of additional sewage capacity in the West Goshen Treatment Plant over the next ten years depending on the cost and on the ability of our lines to handle the additional flow.

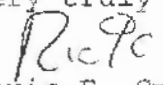
Additionally, Immaculata College and William Henry Apartments, both in East Whiteland Township, have approached us regarding availability of capacity in the East Goshen system. Immaculata's needs are 135,000 gpd and William Henry's 96,000 gpd.

Both facilities are in the Ridley Creek Basin but there is no capacity in the Ridley Creek Plant. However, depending on cost, East Goshen would be willing to convey the sewage to the West Goshen Treatment Plant if capacity approval can be obtained by East Whiteland.

Beyond ten (10) years we estimate a possible need for 145,000 gpd.

Please contact me if you have any questions.

Very truly yours,


Louis F. Smith, Jr.
Township Manager

LFS/skf

cc: East Goshen Board of Supervisors
East Goshen Municipal Authority
Yerkes Associates, Inc.
West Goshen Township Manager, Patricia L. Guernsey
West Goshen Treatment Plant Superintendent, John M. Scott

file name: 10yrast

West Whiteland Township

December 12, 1995
Glace Associates
3705 Trindle Road
Camp Hill, PA 17011

222 NORTH POTTSTOWN PIKE
P.O. BOX 210
EXTON, PENNSYLVANIA 19341
(610) 363-9525
FAX (610) 363-5099

Attention: Mr. Max Stoner

Re: Future Sewer Capacity Needs

Dear Max:

Per your October 25, 1995 letter regarding sewer capacity to be purchased from West Goshen Township, the Township's Act 537 Plan was approved in May of 1995 to include the 150,000 gallons of interim capacity that we are purchasing from West Goshen Township.

With regard to future permanent capacity for the next ten years, the Township would be satisfied with a total of 200,000 gpd including the 150,000 gallons which have been purchased on a temporary basis. The additional 50,000 gallons is to insure that we maintain our sewage flows with the approved capacity level through the New Street force main. Of course, this is all predicated on the price of the new sewage. However, for planning purposes, please include us in a permanent capacity of 200,000 gpd for the next ten year period.

At this time, we do not anticipate any additional sewer needs at the West Goshen sewage treatment plant after the year 2005 as the Township has capacity at DARA and is anticipating on-site treatment at the Church Farm School property.

Very truly yours,

WEST WHITELAND TOWNSHIP

Stephen J. Ross
Township Manager

SJR:pl

cc: West Goshen-Guernsey

J. Roscioli

R. Schloesser

wp:jrsewer/future.wg

Post-It® Fax Note	7671	Date	12/13	# of pages	1
To	Max Stoner	From	Joe Roscioli		
Co./Dept.		Co.			
Phone #		(610) 363-9525			
Fax #					

West Whiteland Township

222 NORTH POTTSTOWN PIKE
P.O. BOX 210
EXTON, PENNSYLVANIA 19341
(215) 363-9625
FAX (215) 363-5099

September 28, 1995

Mrs. Patricia Guernsey, Manager
West Goshen Township
1025 Paoli Pike
West Chester, PA 19380-4699

Dear Pat:

This letter will acknowledge our discussion of September 27, 1995, regarding sewer capacity to be purchased from West Goshen Township. The Township's Act 537 Plan was approved in May of 1995, to include the 150,000 gallons of interim capacity that we are purchasing from West Goshen Township. Of course, we have the agreement between West Whiteland and West Goshen, as you pointed out to me, that was returned to us in mid-June. With regard to future permanent capacity, the Township would be satisfied with a total of 200,000 gpd including the 150,000 gallons, which has been purchased on a temporary basis. The additional 50,000 gallons is to insure that we maintain our sewage flows within the approved capacity level through the New Street force main. Of course, this is all predicated on the price of the new sewage. However, for planning purposes please include us in permanent capacity of 200,000 gpd.

If you have further questions in this regard, please call me.

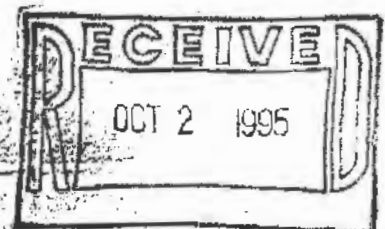
Sincerely,

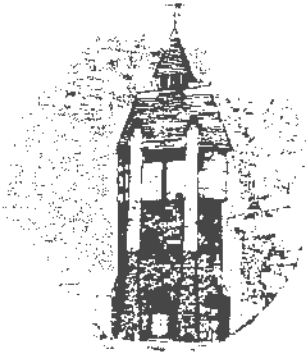
WEST WHITE LAND TOWNSHIP


Stephen J. Ross
Township Manager

SJR/pr

u:\win\ross\sewcapwg.pg





WESTTOWN TOWNSHIP

1081 Wilmington Pike
West Chester, PA 19382

Post Office Box 79
Westtown, PA 19395

610-692-1930

December 1, 1995

Robert E. Lambert, Chairman
West Goshen Board of Supervisors
1025 Paoli Pike
West Chester, PA 19380-4699

RE: Additional Sewage Capacity
West Goshen Sewage Treatment Plant

Dear Mr. Lambert:

The conceptual conditions outlined in your letter of November 28, 1995, granting an additional 15,000 gpd capacity to Westtown Township's current capacity, are acceptable to the Board of Supervisors. It is understood an interim charge is based on an estimated cost and adjustments may be required following completion of the project.

John Scott, plant manager, will be notified by copy of this letter to direct your solicitor to draft an amendment to the existing intermunicipal agreement.

Westtown Supervisors thank you for your response to the Township need and encourage your pursuit of the treatment plant expansion.

Sincerely,

Evelyn L. Groff
Evelyn L. Groff
Township Secretary

cc: John M. Scott, Plant Manager
Patricia L. Guernsey, Township Manager
Max E. Stoner, Glace Associates /
Robert Brown, Sewer Authority
Robert F. Adams, Esquire



WESTTOWN TOWNSHIP

1081 Wilmington Pike
West Chester, PA 19382

Post Office Box 79
Westtown, PA 19395

610-692-1930

November 17, 1995

Glace Associates, Inc.
Max E. Stoner, President
3705 Trindle Road
Camp Hill, PA 17011

RE: Your File: 89036.A
Update on Sewage Treatment Plant Needs
West Goshen Sewage Treatment Plant

Dear Mr. Stoner:

In response to your letter of October 25, 1995, the Westtown Board of Supervisors submits an anticipated need of 300,000 GPDs sewage capacity over the next ten years.

As you are aware, this year Westtown requested an additional 100,000 GPDs capacity, which is included in the above figure and is earmarked for :

1. Joseph Kravitz development - 16 homes
2. Westtown Woods development - 39 homes
3. McCawley Tract - 252 apartment units, office park
4. Balance of Wild Goose Farms approved allotment if existing 230,000 GPDs is exceeded

Westtown applauds the decision to move forward with the phased expansion and offers any assistance it can provide to assure its expeditious completion.

Sincerely,

Evelyn L. Groff
Evelyn L. Groff
Township Secretary

cc: Patricia L. Guernsey, WG Township Manager
John M. Scott, WG Plant Superintendent
Robert Brown, Chairman, WG Sewer Authority
Lewis H. Reid, Secretary, WG Sewer Authority



Board of Supervisors

125 South Pike
West Chester, PA 19380-4699
(610) 696-5166

Fax: (610) 429-0616

November 28, 1995

Ms. Evelyn L. Groff, Township Secretary
Westtown Township
Board of Supervisors
Post Office Box 79
Westtown, Pennsylvania 19395

Dear Ms. Groff:

Re: Additional Sewage Treatment Capacity At West Goshen
Sewage Treatment Plant

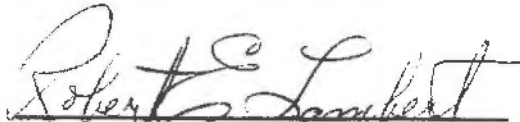
This is to affirm the Board's current position on Westtown Township's request for additional capacity at the West Goshen Sewage Treatment Plant. The Board of Supervisors concurs with the basic concepts the West Goshen Sewer Authority recommended at its October 11, 1995 meeting. The Authority's recommendations were as follows:

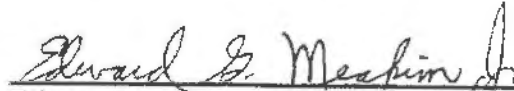
1. Up to 15,000 gpd of additional treatment capacity will be granted as soon as an agreement is executed by all parties.
2. The 15,000 gpd allotment will be part of the Westtown Township's overall request for new capacity in the expanded STP, which will be a minimum of 100,000 gpd if all involved governmental agencies approve of the expansion.
3. The ultimate costs for the additional 15,000 gpd capacity will be based on the per gallon cost of the expanded STP. An interim charge may be made on the engineer's estimated costs on a lump sum basis as per Item 4 below or added to Westtown Township's debt service. Based on estimated project costs of \$90,000, the debt service payments would be \$9,095.40 in semi-annual installments of \$4,547.70. This was based on amortizing the capital costs at 8% over 20 years with semi-annual payments. Adding to the existing debt service of \$37,000 per year, the total debt service would be \$46,095.40. An adjustment would have to be made after the project is completed and the final costs are determined.
4. The engineer's opinion of preliminary project costs are estimated at \$6.00 per gallon or \$1,500 per EDU based on 250 gallons per EDU. For 15,000 gpd, this cost would therefore be a lump sum payment of \$90,000.

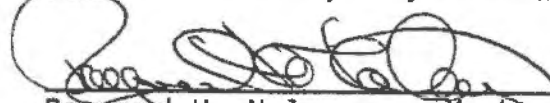
If the aforementioned conceptual conditions are acceptable to the Westtown Township Board, please contact John Scott at 696-0900 so that he can direct our solicitor to draft an amendment to the existing Intermunicipal Agreement.

Sincerely,

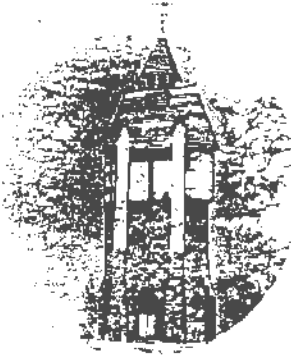
Board of Supervisors
West Goshen Township


Robert E. Lambert, Chairman


Edward G. Meakim, Jr., Vice-Chairman


Raymond H. Halvorsen, Member

cc: West Goshen Sewer Authority
Patricia L. Guernsey, Township Manager
John M. Scott, Plant Manager
Ross A. Unruh, Esq.
Ronald Nagle, Esq.
Max E. Stoner, Glace Associates



WESTTOWN TOWNSHIP

1081 Wilmington Pike
West Chester, PA 19382

Post Office Box 79
Westtown, PA 19385

215-692-1930

July 27, 1993

Attn: Patricia L. Guernsey, Township Manager
West Goshen Township
1025 Paoli Pike
West Chester, PA 19380

RE: Future Reserve Capacity
West Goshen Sewer Treatment Plant

Dear Pat:

In May I wrote to you indicating Westtown's interest in acquiring additional sewage capacity from West Goshen Township if it decides to expand to a seven million gallon plant.

Based on a report by the Township engineer, in association with information prepared for Westtown's Act 537, the Board of Supervisors requests your consideration of a future 220,000 GPDs reserve capacity for Westtown Township.

If you have any questions or comments, please call. Thank you for your consideration.

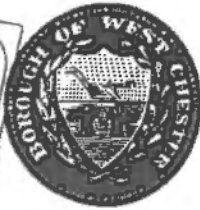
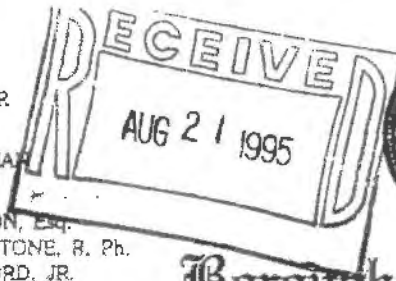
Sincerely,

Evelyn L. Groff
Evelyn L. Groff
Township Secretary

COPY

COUNCIL
ELEANOR E. LOPER
President
MARY D. ZIMMERMAN
Vice President

JANET M. COLLITON, Esq.
ROBERT L. WHETSTONE, R. Ph.
DONALD E. HURFORD, JR.
SHANNON E. ROYER
ANNE M. CARROLL



9-11-11
copy to
Board
Sewer Auth
B

MUNICIPAL BUILDING
401 EAST GAY STREET
WEST CHESTER, PA
19380

(610) 692-7574
Fax (610) 436-0009

CLIFFORD E. DeBAPTISTE
Mayor

ERNIE B. McNEELY
Borough Manager

Borough of West Chester Pennsylvania

OFFICE OF BOROUGH COUNCIL

August 17, 1995

Mr. A. Pierson Sill, Chairman
Board of Supervisors
Westtown Township
P.O. Box 79
Westtown, PA 19395

Dear Mr. Sill:

At their regular meeting August 16, 1995, Borough Council voted unanimously to indicate that they are willing to sell up to 99,000 gpd of sewer capacity to Westtown Township via an intermunicipal agreement with West Goshen Township.

This would have to be subject to approval by the PA Department of Environmental Protection and should be a short term sale defined as 5 - 10 years. The short term approach would give Westtown Township and West Goshen Township time to resolve your long term sewer needs through plant expansion. Alternatively, if you wanted to discuss purchase of permanent sewer capacity, a dialogue would have to be initiated with Wyeth Industries because they own most of the unused capacity at the Goose Creek Wastewater Plant. The Borough is willing to explore that possibility with Wyeth Industries if that would be your preference.

Please let me know how you may wish to proceed, and again Borough Council stands ready to enter into a cooperative arrangement for sewer service if the details can be worked out.

Very truly yours,

Ernie B. McNeely
Borough Manager

EBM/wep
cc: Council
Mayor
K. Oakes
P. Guernsey, West Goshen Twp.
E. Groff, Westtown Twp.

COPY

4 P. Guernsey
West Goshen
Mr. Brown
WG Sewer
Authority

GLACE ASSOCIATES, INC.

CONSULTING ENGINEERS

3705 Trindle Road
Camp Hill, PA 17011

717-731-1579 • FAX 717-731-1348

This acknowledges that the following has received a copy of the West Goshen Township Act 537 Plan dated September 1996 for review and written comment:

Chester County Health Department
Government Services Center
601 Westtown Road, Suite 295
West Chester, PA 19382-4543

Received By

Date

Pat Poty, C.E.
9/20/96

GLACE ASSOCIATES, INC.

CONSULTING ENGINEERS

3705 Trindle Road

Camp Hill, PA 17011

September 19, 1996

717-731-1579 • FAX 717-731-1348

File: 89036.A

Chester County Health Department
Government Services Center
601 Westtown Road, Suite 295
West Chester, PA 19382-4543

Attn: Mr. David A. Jackson, Director of Bureau of Environmental Health Protection

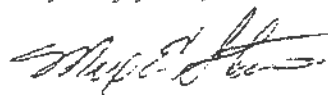
Dear Mr. Jackson:

Re: West Goshen Township Act 537 Plan
Review Request

Enclosed please find a copy of the Township's proposed Act 537 Plan. This Plan is being provided to you for review and written comments back to the Township for inclusion in the consistency evaluation section of the Plan. West Goshen Township and its three contributing municipalities (East Goshen, Westtown and West Whiteland Townships) are under a very tight timetable in regards to their desire to expand the existing treatment facility. Therefore, your prompt response to this request for review of this planning document would be most appreciated.

Should you have any questions in regards to the contents of the Plan or any alternative that was evaluated, do not hesitate to contact me. I am available to meet with you after your initial review to answer any questions in regards to the plan. Thank you in advance for your anticipated timely review and response.

Very truly yours,



Max E. Stoner, P.E.
President

MES/ksd

Enclosures

cc: West Goshen Township, Patricia L. Guernsey, Township Manager
West Goshen Township, John M. Scott, Plant Superintendent
West Goshen Sewer Authority



THE COUNTY OF CHESTER

Commissioners:
Karen L. Martynick, Chairman
Colin A. Hanna
Andrew E. Dinniman

CHESTER COUNTY HEALTH DEPARTMENT
Chester County Government Services Center
601 Westtown Road, Suite 295
West Chester, PA 19382-4543
(610) 344-6237
FAX (610) 344-6727



November 7, 1996

Patricia L. Guernsey
Township Manager
West Goshen Township
1025 Paoli Pike
West Chester, PA 19380

RE: West Goshen Township Act 537 Plan

Dear Ms. Guernsey:

The Chester County Health Department, Bureau of Environmental Health Protection, has completed our review of the West Goshen Township Act 537 Official Wastewater Facilities Plan dated September 1996.

The Plan proposes to expand the West Goshen Wastewater Treatment Plant from 4.5 mgd to 6.0 mgd at its current location on South Concord Road. This Department offers the following comments and questions concerning your proposal:

1. The Plan does not adequately demonstrate the need for the plant expansion. It appears from the flow projections provided that two of the contributing municipalities may be at or above their allocated plant capacity, however, overall the 4.5 mgd will not be exceeded. Would it not be more prudent and cost effective to re-negotiate flow allocations between the contributing municipalities instead of expanding the plant at this time?
2. It is our understanding at this time that the West Chester Borough Goose Creek Wastewater Treatment Plant has excess capacity that may be available. This alternative was not explored.
3. In the cost comparisons of the alternatives only construction costs are considered. Long term operation and maintenance costs must also be evaluated. With these costs included in the evaluation, it may be determined that another alternative may be less costly.
4. On page GP-82 the cost given to purchase capacity in the West Chester Borough Taylor Run Treatment Plant is \$9.80/gallon, how was this figure derived?
5. In a few of the alternatives it is stated that the Brandywine Creek is a high quality stream. Although, this particular creek is a very valuable resource, PADEP does not classify the section from Route 30 to the Delaware State line as high quality.
6. It is unclear as to whether West Goshen plans on establishing an on-lot management program. A draft ordinance is presented in the appendix, however, no definitive commitment is stated in the Plan.

7. What is meant by the statement on page GP-104 of the Plan that contends: "However, better record keeping at the County level should be kept in regard to on-lot disposal systems."?

8. On page GP-110 it is stated that after the plant expansion planning modules will no longer be submitted to DEP. Please be advised that only the Department of Environmental Protection can waive the requirement to submit planning modules. This is done through the submittal of an application for planning modules (postcard) which is processed through The Chester County Health Department and forwarded to DEP for action.

Overall the Health Department does not support the recommendations of this Plan. The Plan lacks the appropriate, required documentation and does not adequately demonstrate the need to expand the treatment facilities. Additionally, if increased capacity is needed, the plan must fully investigate all alternatives that may be available to provide this capacity.

Should you have any questions concerning this matter, please feel free to contact me at (610)344-6239 or the above address.

Sincerely,



Maria T. Goman
Environmental Health Supervisor

cc: Glace Associates, Inc ✓
Chester County Planning Commission
PA Department of Environmental Protection
file

GLACE ASSOCIATES, INC.

CONSULTING ENGINEERS
3705 Trindle Road
Camp Hill, PA 17011

December 4, 1996

717-731-1579 • FAX 717-731-1348

File: 89036.A

Chester County Health Department
Chester County Government Services Center
601 Westtown Road
Suite 295
West Chester, PA 19382-4543

Attn: Ms. Maria T. Goman, Environmental Health Supervisor

Dear Ms. Goman:

Re: West Goshen Township Act 537 Plan

On behalf of West Goshen Township Board of Supervisors, we are hereby responding to your November 7, 1996, correspondence regarding the Health Department's review of the Township's Act 537 Plan dated September, 1996. Our response to your comments are listed in the same sequence as they were listed in your review letter:

- 1. The Plan does not adequately demonstrate the need for the plant expansion. It appears from the flow projections provided that two of the contributing municipalities may be at or above their allocated plant capacity, however, overall the 4.5 mgd will not be exceeded. Would it not be more prudent and cost effective to re-negotiate flow allocations between the contributing municipalities instead of expanding the plant at this time?**

It is acknowledged that the average annual flow does not exceed the plant's 4.5 MGD capacity at this time. However, the Department of Environmental Protection bases its flow capacities on peak three month averages for which the West Goshen Sewage Treatment Plant is projected to have an overload in less than five years based on DEP's methodology. West Goshen Township and the West Goshen Sewer Authority have already temporarily allocated additional capacities to Westtown Township and West Whiteland Township in the amounts of 80,000 gallons per day and 150,000 gallons per day, respectively. This will accelerate the use of the remaining available capacities which will require an expansion in the next two to three years. Both Westtown and West Whiteland Townships have requested 300,000 gallons per day and 200,000 gallons per day, respectively, for the next ten years, with Westtown Township requiring much of their capacity within the next year. This is principally due to the large apartment complex proposed by JPI known as Jefferson at Westtown and serving some existing developments with high percentages of malfunctioning on-lot disposal systems.

Ms. Maria T. Goman

Page 2

December 4, 1996

The next logical phase of expansion is to 6.0 MGD as the plant is currently constructed in 1.5 MGD increments.

In regards to the cost effectiveness, there will be a minimal impact on West Goshen customers as the capacity is required at this time and growth in the Township is continuing at a moderate pace. The increase for West Goshen customers is estimated between \$40.00 and \$60.00 per year at the interest rates in the current market. West Goshen Township sewer customers have the lowest sewer rate of medium to large sized municipalities known to us in the County. The current flat residential rate is \$37.50 per quarter or \$150.00 per year. This low rate has been maintained through good planning, cost effective design, smooth operation and continuing growth in the Township as well as allocating capacity and sharing costs with several surrounding municipalities.

2. **It is our understanding at this time that the West Chester Borough Goose Creek Wastewater treatment Plant has excess capacity that may be available. This alternative was not explored.**

West Chester Borough was contacted early on in the process of evaluating the availability of capacity for West Goshen Township and the contributing municipalities to the Goose Creek Treatment Plant. As late as 1995, we met with DEP, Westtown Township and West Goshen Township officials to investigate the possibility of purchasing capacity for the Jefferson at Westtown Apartment Complex proposed for Westtown Township. At that time, West Chester Borough only had 99,000 gallons per day capacity available for purchase by an outside municipality. Correspondence is attached hereto along with minutes of the meeting with DEP representatives. Based on the needs of the four contributing municipalities in the next ten years, the West Chester Borough option would have been a band aid approach to the wastewater planning needs of these municipalities.

3. **In the cost comparisons of the alternatives only construction costs are considered. Long term operation and maintenance costs must also be evaluated. With these costs included in the evaluation, it may be determined that another alternative may be less costly?**

In the comparison of the alternatives, the operation and maintenance costs were only evaluated for the three types of treatment processes investigated at the existing wastewater treatment facility (See Table 25, GP-116). It was felt unnecessary to develop O & M costs for the other alternatives off site as the costs would certainly be greater due to the staffing requirements and duplication of operating two remote facilities. With the construction cost even higher at the off-site treatment plants evaluated, it was felt that there would not be a net savings over expanding the existing facilities.

Ms. Maria T. Goman

Page 3

December 4, 1996

4. **On page GP-82 the cost given to purchase capacity in the West Chester Borough Taylor Run Treatment Plant is \$9.80/gallon, how was this figure derived?**

The cost to purchase capacity in the West Chester Borough Taylor Run Treatment Plant was estimated at \$9.80 per gallon based on the estimated construction and project costs for a similar process that is existing at that facility now. The existing Taylor Run Treatment Plant equipment is not the least costly process available. The \$9.80 per gallon figure includes 25% for project related costs such as engineering, land, legal, administrative, financing and other related project costs.

5. **In a few of the alternatives it is stated that the Brandywine Creek is a high quality stream. Although, this particular creek is a very valuable resource, PADEP does not classify the section from Route 30 to the Delaware State line as high quality.**

In a few of the alternatives it is agreed that Brandywine Creek was referred to as a high quality stream. Perhaps it should have been better addressed that it is a higher quality stream than the Goose Creek where the West Goshen Sewage Treatment Plant effluent is currently discharged. Both Goose Creek and Brandywine Creek from Route 30 to the Delaware State line are classified as warm water fishery. In addition, Brandywine Creek is identified as having migratory fishes present. However, from our experience, the residents of Delaware and the State of Delaware and residents all along the Brandywine Creek have been attempting to have the Brandywine Creek classified as a higher quality stream to protect this valuable resource. To date, I have heard no such clamoring from the residents and municipalities along Goose Creek or the East Branch of Chester Creek basins.

6. **It is unclear as to whether West Goshen plans on establishing an on-lot management program. A draft ordinance is presented in the appendix, however, no definitive commitment is stated in the Plan.**

West Goshen Township does plan on establishing on-lot management program. A commitment is listed in the Plan Summary implementation schedule on page PS- 21 of the Act 537 Plan.

7. **What is meant by the statement on page GP-104 of the Plan that contends: "However, better record keeping at the County level should be kept in regards to on-lot disposal system."?**

When our planner went to the County Health Department to review records of on-lot sewage disposal system malfunctions in West Goshen Township, no records could be found. Some records were found of wells that had been drilled recently in the Township. It was thought that for identifying problem areas within the Township, it would be beneficial for the Township and the Sewer Authority to be aware of any grouping of on-lot septic system malfunctions.

Ms. Maria T. Goman
Page 4
December 4, 1996

8. On page GP-110 it is stated that after the plant expansion planning modules will no longer be submitted to DEP. Please be advised that only the Department of Environmental Protection can waive the requirements to submit planning modules. This is done through the submittal of an application for planning modules (postcard) which is processed through the Chester County Health Department and forwarded to DEP for action.

In regards to the statement on GP-110 regarding planning modules, it was the intent here to only state that the planning modules themselves may no longer be required to be submitted to DEP. It was not stated that the submittal of application for an exemption for filing planning modules would not be required. The proper planning process will be followed in accordance with the rules and regulations of the Chester County Health Department and Pennsylvania Department of Environmental Protection in this regards.

In summary, the need to expand the treatment facilities has been recognized by the contributing municipalities and the Pennsylvania Department of Environmental Protection. In particular, the Pennsylvania Department of Environmental Protection has placed the West Goshen Sewer Authority Sewage Treatment Facility on a mandatory Sewage Management Program where each municipality that contributes flows will have their connections monitored on a quarterly basis. This was started last year on a voluntary basis and is now mandatory. With the higher than expected flows this past winter and spring from the unusually excessive snowfall and rainfall this spring and summer, the Authority's treatment facility is even that much closer to being in excess of its treatment plant capacity. All four of the contributing municipalities have agreed to adopt the Act 537 Plan as prepared and submitted to them for review.

Should you have any additional questions or comments on our responses to your review of the Act 537 Plan dated September 1996, do not hesitate to contact me.

Sincerely,



Max E. Stoner, P.E.
President

MES/ksd

cc: West Goshen Township Board of Supervisors
West Goshen Sewer Authority
West Goshen Township, John M. Scott, Plant Superintendent
East Goshen Township
West Whiteland Township
Westtown Township

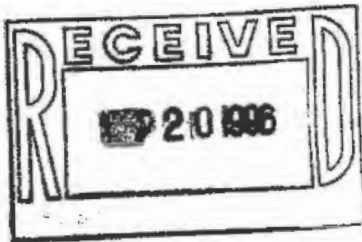
GLACE ASSOCIATES, INC.

CONSULTING ENGINEERS
3705 Trindle Road
Camp Hill, PA 17011

717-731-1579 • FAX 717-731-1348

This acknowledges that the following has received a copy of the West Goshen Township Act 537 Plan dated September 1996 for review and written comment:

Chester County Planning Commission
Government Services Center
601 Westtown Road, Suite 270
West Chester, PA 19382-4543



Received By _____
Date _____

Andy Whit
9/20/96

GLACE ASSOCIATES, INC.

CONSULTING ENGINEERS

3705 Trindle Road
Camp Hill, PA 17011

September 19, 1996

717-731-1579 • FAX 717-731-1348

File: 89036.A

Chester County Planning Commission
Government Services Center
601 Westtown Road, Suite 270
West Chester, PA 19382-4543

Attn: Mr. Rob Ihlein, Planner

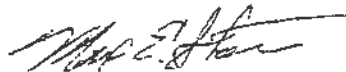
Dear Mr. Ihlein:

Re: West Goshen Township Act 537 Plan
Request for Review

Enclosed please find a copy of the Township's proposed Act 537 Plan. This Plan is being provided to you for review and written comments back to the Township for inclusion as part of the consistency evaluation section of the Plan. The Township and its three contributing municipalities (East Goshen, Westtown, West Whiteland Townships) are under a very tight timetable in regards to their desire to expand the existing treatment facility. Therefore, your prompt response to this request for review of this planning document would be most appreciated.

Should you have any questions in regards to the contents of the Plan or any alternative that was evaluated, do not hesitate to contact me. I am available to meet with you after your initial review to answer any questions in regards to the Plan. Thank you in advance for your anticipated timely review and response.

Very truly yours,



Max E. Stoner, P.E.
President

MES/ksd

Enclosures

cc: West Goshen Township, Patricia L. Guernsey, Township Manager
West Goshen Township, John M. Scott, Plant Superintendent
West Goshen Sewer Authority

THE COUNTY OF CHESTER

PLANNING COMMISSION
Government Services Center • Suite 270
601 Westtown Road
West Chester, PA 19382-4537



COMMISSIONERS
Karen L. Martynick, Chairman
Colin A. Hanna
Andrew E. Dinniman

William H. Fulton, AICP, Executive Director

(610) 344-6285 • FAX: (610) 344-6515

November 15, 1996

Edward G. Meakim, Jr., Chairman
West Goshen Township Board of Supervisors
1025 Paoli Pike
West Chester, PA 19380

Re: Act 537 Official Wastewater Facilities Plan

Dear Mr. Meakim:

The Chester County Planning Commission (CCPC) has completed its review of the Official Sewage Facilities Plan for West Goshen Township. Our review of the Plan is required by Chapter 71, Section 71.31(b) the Pennsylvania Sewage Facilities Act. Additionally, the construction, operation and maintenance of sewage facilities are issues followed closely by CCPC because of their significance in local and county land use planning, as well as their impacts on public health and environmental quality.

Our review of the draft plan document uncovered a number of issues the Township should consider and address before the plan is formally adopted and sent to the PA Department of Environmental Protection (PADEP) for their review and action. Our primary concern is that there is no mention or reference to the Act 537 Plans of the other municipalities which contribute to the flows of the West Goshen Wastewater Treatment Plant. The 1995 Chapter 94 report contained in the Appendix contains rough flow projections from the contributing municipalities only to the year 2000. Information contained in the Act 537 Plans of the other contributing municipalities would help West Goshen make flow projections for next ten to fifteen years. The County Planning Commission believes that the primary recommendation for a 1.5 million gallons per day plant expansion may not be valid without this important information.

Following are comments and questions specific to the content of the draft Plan. Our recommendations are contained at the end of this letter.

Comments and Questions

- On page PS-1 it is stated that "approximately 200 residential units rely on individual on-lot disposal systems, which should be adequate in the future if properly maintained". Statements made on page PS-6 indicate that there are no apparent significant problems with these systems, and that their use will be continued in areas not presently served by the municipal sewerage facilities. However, information contained in Table C on page PS-3 indicates that there will be a net reduction of 20,000 gallons per day (gpd) over time from on-lot systems in West Goshen. Will it be necessary to connect all of these homes if there are no significant problems?

- Table B on page PS-2 would be more meaningful if it included the total number of housing units are expected to be sewered by the year 2005 and how many are expected to be using on-lot disposal systems (OLDS). While we do not dispute the population projections reported in the 1992 State Water Plan, the County Planning Commission also has conducted population projects for all municipalities in the County to the year 2020. These projections could be used to compare and contrast those contained in the State Water Plan.

- On page PS-5 it is stated that "the Township and Authority are proceeding with a 1.5 mgd expansion regardless of the ability or inability of the other municipalities to pay for the capacity". Can the West Goshen Township Board of Supervisors and the Municipal Authority justify placing the burden of the cost of the proposed expansion project on the existing rate payers?

- It is stated on page PS-7 that West Goshen will retain 800,000 gpd out of the proposed additional capacity with the other contributing municipalities picking up the other 700,000 gpd pursuant to their projected 10 year needs. The five year projections contained in Table C on page PS-3 indicate that West Goshen will need 330,000 gpd of capacity, and a total of 265,000 gpd of capacity will be needed by the other three contributing municipalities. This is a total need of 4,039,000 gpd, not 4,351,000 gpd as shown.

- On page PS-9 there is a discussion regarding areas that are estimated to be sewerred within 5 to 20 years to alleviate wastewater problems of existing improved properties if the need should arise. Reference is then made to Exhibit 3-1, which supposedly shows these areas. This exhibit was not contained in the document submitted for our review. The CCPC believes the potential for malfunctions of on-lot disposal systems will be significantly reduced if the Township were to adopt the on-lot management program described in the document.

- Table 16 on page GP-49 would be more useful if the "EDU's" and "Flow" columns were totaled.

- The numbering of the Tables on pages PG-50 & 51 do not correspond with the table numbers mentioned in the text.

- Table 20 on page GP-53 appears to be an attempt to estimate future sewage flows from developable land in the sewer service area, one of the most important parts of the document. However, there is no text to explain how the table was derived, nor does the document contain the map that would show these undeveloped parcels (Exhibit 3-1). This table also assumes that there currently is an average of 3 persons per dwelling unit and will remain the same in the future. Census information indicates that there is not an average of three persons per dwelling unit in Chester County, and that average household population will continue to decline.

- The text on page GP-56 does not refer the reader to the correct Table and Exhibit numbers.

- It is the opinion of the County Planning Commission that the draft Plan has not adequately addressed "Alternatives to Provide New or Improved Wastewater Disposal Facilities", particularly by repair, upgrading, improved operation and maintenance, and other applicable actions (V.3.a-d, page GP-57). Does the Township have any plans to reduce existing and potential flows to the plant through expenditures on reducing inflow & infiltration, conservation measures, efficiency improvements, etc.? Allowing community on-lot disposal systems for new land developments would be another alternative method.

- The draft Plan does not clearly state how the Township will actually implement the "On-Lot Management District Program" discussed on pages GP-106 - 108.

Recommendations

1. The Act 537 Plans of the three contributing municipalities should be consulted and included by reference in this Plan.

2. Estimated sewage flows from all four municipalities need to be re-examined and explained in greater detail. A map showing developable properties within the sewer service areas of all the municipalities should be included and documented.

Page:3

Re: Act 537 Official Wastewater Facilities Plan

3. The Plan should evaluate in detail the possibility of avoiding the plant expansion through other actions.
4. The Township should specify how the "On-Lot Management District Program" will be implemented.

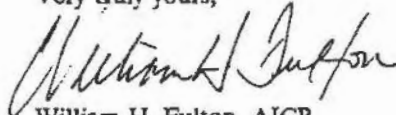
Other Comments

The County Planning Commission supports the recommendation contained on page GP-110 that the Township's Comprehensive Plan be updated to include existing conditions and a reevaluation of the goals and objectives of West Goshen Township. We encourage you to do this as part of the County Vision Partnership Program which would provide technical and financial support.

Our experience shows that this review should be addressed in writing by the Township. Your response should be included with the Plan Update when it is submitted to PADEP for their review and action. We request a copy of your response and any revisions to the Plan Update for our files.

If you have any questions regarding this review, please call me at 344-6285.

Very truly yours,



William H. Fulton, AICP
Secretary

WHF/RI/yzg

cc: Maria Goman, Health Department
Glen Stinson, PA DER
L. Joan Rivell, Township **Secretary**
Max E. Stoner, P.E., Glace Associates, Inc.

GLACE ASSOCIATES, INC.

CONSULTING ENGINEERS
3705 Trindle Road
Camp Hill, PA 17011

January 17, 1997

717-731-1579 • FAX 717-731-1348

File: 89036.A

Certified Mail No. P 832 492 399

The County of Chester Planning Commission
Government Services Center
Suite 270
601 Westtown Road
West Chester, PA 19382-4537

Attn: Mr. William H. Fulton, AICP, Secretary

Dear Mr. Fulton:

Re: Act 537 Official Wastewater Facilities Plan - West Goshen Township

On behalf of the West Goshen Township Board of Supervisors we are hereby responding to the Planning Commission's November 15, 1996, correspondence regarding the Planning Commission's review of the Township's Act 537 Plan dated September 1996. Responses to your comments are in the same sequence as they were listed in your review letter.

COMMENTS AND QUESTIONS

- **On page PS-1 it is stated that "approximately 200 residential units rely on individual on-lot disposal systems, which should be adequate in the future if properly maintained". Statements made on page PS-6 indicate that there are no apparent significant problems with these systems, and that their use will be continued in areas not presently served by the municipal sewerage facilities. However, information contained in Table C on page PS-3 indicates that there will be a net reduction of 20,000 gallons per day (gpd) over time from on-lot systems in West Goshen. Will it be necessary to connect all of these homes if there are no significant problems?**

The net reduction of 20,000 gallons per day (gpd) over time from on-lot systems in West Goshen is not due to the West Goshen Sewer Authority or Township requesting the Authority to extend lines to areas without public sewers. At the current time, the Sewer Authority has no plans to extend its facilities at its cost to any portion of the Township. However, if an area of severe need does develop, the Authority would consider extending the lines at that time. The reduction of the on-lot systems will be a result of developer extensions to the Authority's system and the connection of existing dwellings with on-lot sewage disposal systems to the public sewerage system extensions. In the past, this has been the principal reason for the reduction of on-lot septic system use in West Goshen Township. The Township has an ordinance requiring mandatory connection of on-lot sewage disposal systems of any dwellings

Mr. William H. Fulton

Page 2

January 17, 1997

within 150 feet of the Authority's Public Sewage System. The Authority's Trust Indenture requires that the Township have a mandatory connection ordinance to protect the owners of the Authority's Bonds.

- **Table B on page PS-2 would be more meaningful if it included the total number of housing units that are expected to be sewered by the year 2005 and how many are expected to be using on-lot disposal systems (OLDS). While we do not dispute the population projections reported in the 1992 State Water Plan, the County Planning Commission also has conducted population projections for all municipalities in the County to the year 2020. These projections could be used to compare and contrast those contained in the State Water Plan.**

The total number of housing units expected to be sewered and utilizing on-lot disposal systems by the year 2005 will be shown in Table B on page PS-2. We will also include the County's Planning Commission population projections for the contributing municipalities until the year 2020 for comparative purposes. However, the Township and Authority will utilize the higher population projections for sewage flow planning purposes.

- **On page PS-5 it is stated that "the Township and Authority are proceeding with a 1.5 mgd expansion irregardless of the ability or inability of the other municipalities to pay for the capacity". Can the West Goshen Township Board of Supervisors and the Municipal Authority justify placing the burden of the cost of the proposed expansion project on the existing rate payers?**

The West Goshen Township and the West Goshen Sewer Authority Boards realize the need to expand the treatment facility. The next logical phase of expansion is a 1.5 million gallon per day unit. The increase for West Goshen customers is estimated between \$40.00 and \$60.00 per year at the interest rates in the current bond market. West Goshen Township sewer customers have the lowest sewer rates of medium to large sized municipalities known to us in the County. The current flat residential rate is \$37.50 per quarter or \$150.00 per year. This low rate has been maintained through good planning, cost effective designs, smooth operation and continuing growth in the Township as well as sharing capacity and costs with surrounding municipalities. West Goshen Township Supervisors do not wish to delay or adversely affect the development of the remaining portions of West Goshen Township through not having sufficient sewage capacity available at the proper time.

- **It is stated on page PS-7 that West Goshen will retain 800,000 gpd out of the proposed additional capacity with the other contributing municipalities picking up the other 700,000 gpd pursuant to their projected 10 year needs. The five year projections contained in Table C on page PS-3 indicate that West Goshen will need 330,000 gpd of capacity, and a total of 265,000 gpd of capacity will be needed by the other three contributing municipalities. This is a total need of 4,039,000 gpd, not 4,351,000 gpd as shown.**

Mr. William H. Fulton

Page 3

January 17, 1997

Table C flow figures have been adjusted to be consistent with Tables 20 & 21 which were also revised to include Westtown Township's additional flow needs which developed in late 1996.

- **On page PS-9 there is a discussion regarding areas that are estimated to be sewered within 5 to 20 years to alleviate wastewater problems of existing improved properties if the need should arise. Reference is then made to Exhibit 3-1, which supposedly shows these areas. This exhibit was not contained in the document submitted for our review. The CCPC believes the potential for malfunctions of on-lot disposal systems will be significantly reduced if the Township were to adopt the on-lot management program described in the document.**

It is agreed that malfunctions of on-lot disposal systems will be significantly reduced if the Township implements the on-lot management program. As discussed earlier, neither the Township nor the Authority have any plans to extend the collection system to any areas served by on-lot sewage disposal systems at this time. Any new extensions will be by developers and any existing properties along the route will be required to connect if they are within the 150 foot connection requirement from the sewer main.

- **Table 16 on page GP-49 would be more useful if the "EDU's" and "Flow" columns were totaled.**

The columns on Table 16 on page GP-49 have been totaled and an additional column was inserted for clarification. A copy of the revised page is attached for your files.

- **The numbering of the Tables on pages GP-50 & 51 do not correspond with the table numbers mentioned in the text.**

The Tables mentioned in the text on pages GP-50 & 51 have been revised to reflect the correct Tables to be referred to. A copy of each revised page is attached for your files.

- **Table 20 on page GP-53 appears to be an attempt to estimate future sewage flows from developable land in the sewer service area, one of the most important parts of the document. However, there is no text to explain how the table was derived, nor does the document contain the map that would show these undeveloped parcels (Exhibit 3-1). This table also assumes that there currently is an average of 3 persons per dwelling unit and will remain the same in the future. Census information indicates that there is not an average of three persons per dwelling unit in Chester County, and that average household population will continue to decline.**

A description of how the table was derived is now inserted on page GP-53A. In regards to the planning, it is necessary to base the flow on maximum conditions expected. Many of the homes in West Goshen Township have 3 to 4 bedrooms. Previously, DEP required 3.5 persons per

Mr. William H. Fulton

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home for planning for public sewer at 100 gallons per capita per day. This equates to 350 gallons per home. We used 275 gallons per home which is reasonable for planning purposes. Several years ago in a large drainage area of the Township, we calculated the average annual sewer flows for predominantly single family homes to be 229 gallons per day. We agree that average household populations will likely continue to decline but for planning purposes we cannot justify using under 275 gallons per home per day.

- **The text on page GP-56 does not refer the reader to the correct Table and Exhibit numbers.**

These have been revised. This was a result of changing from the previous DEP format to the newer version. A revised copy of page GP-56 is enclosed.

- **It is the opinion of the County Planning Commission that the draft Plan has not adequately addressed "Alternatives to Provide New or Improved Wastewater Disposal Facilities", particularly by repair, upgrading, improved operation and maintenance, and other applicable actions (V.3a-d, page GP-57). Does the Township have any plans to reduce existing and potential flows to the plant through expenditures on reducing inflow & infiltration, conservation measures, efficiency improvements, etc.? Allowing community on-lot disposal system for new land development would be another alternative method.**

West Goshen Township has prevented the necessity of expanding the wastewater treatment facility since at least 1989 through an aggressive infiltration/inflow reduction program, implementing a mandatory water conservation fixture ordinance (a copy which is attached in Appendix E) and through optimizing the operation and maintenance of the treatment facility. In 1989, the flows to the Authority's Wastewater Treatment Facility were sufficient enough to have a projected 5-year overload in accordance with DEP methodology. Through the efforts of West Goshen Township staff and the sewage collection facility staffs of the three contributing municipalities, a full seven years later, the treatment facility is still operating within its permitted capacity. However, considerable growth has occurred in the last seven years in all four municipalities and the efforts to reduce excessive infiltration/inflow, water conservation measures and the improvements at the treatment plant have conserved as much capacity as possible. Therefore, based on projected population increases and the recent increase in development activity in these four municipalities, it is necessary at this time to proceed with constructing an expansion of the wastewater treatment facility.

There is probably only one property in West Goshen Township that is large to have a community on-lot disposal system or that is not sufficiently close that public sewer is the most cost effective means of sewerage for the property. It is a known fact that community on-lot disposal systems are often more of a band-aid approach awaiting the availability of public sewers. In our planning for wastewater flows from particular undeveloped areas in the Township, it is still necessary to design the collection system and treatment facilities to accept flows from these areas. Therefore, the treatment plant capacity and the size of the collection

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system must be designed to accept the projected flows from undeveloped areas that would even utilize a community on-lot disposal system. The proximity of the Authority's collection system to every corner of the Township as shown on Exhibit 2-14 demonstrates that public sewers are available and should be the ultimate means of sewage disposal.

- **The draft Plan does not clearly state how the Township will actually implement the "On-Lot Management District Program" discussed on page GP-106-108.**

The Township will discuss the actual details of the On-Lot Management Program after review by the Township Planning Commission and input from the citizens of the Township. A draft plan for discussion purposes was included as Appendix K to the Act 537 Plan.

Mr. William H. Fulton

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RECOMMENDATIONS

1. **The Act 537 Plan of the three contributing municipalities should be consulted and included by reference in this Plan.**

The Act 537 Plan of the three contributing municipalities were consulted and reviewed by our firm on behalf of West Goshen Township. Some of these changes in request for additional treatment capacity of the three contributing municipalities have occurred since the draft or the adoption of their current Act 537 Plans, in particular Westtown and West Whiteland Townships. The flows requested by the various contributing municipalities are essentially in accordance with their Act 537 Plans. It will be necessary at a minimum for Westtown and West Whiteland Townships to revise or amend their Act 537 Plans to be consistent with the wastewater capacities they intend to purchase from the West Goshen Sewer Authority. All three contributing municipalities have adopted this Act 537 Plan, copies of which are enclosed.

2. **Estimated sewage flows from all four municipalities need to be re-examined and explained in greater detail. A map showing developable properties within the sewer service areas of all the municipalities should be included documents.**

Estimated sewage flows from all four municipalities have been reexamined. It was felt that it would not be necessary for the West Goshen Township Act 537 Plan to show the developable properties within the sewer service areas of all the municipalities as West Goshen Township is essentially concerned solely with the total flows to be contributed by each municipality at certain locations in the West Goshen collection system.

3. **The Plan should evaluate in detail the possibility of avoiding the plant expansion through other actions.**

West Goshen Township Officials certainly do not wish to expand the wastewater treatment plant if it is unnecessary. Raising rates of sewer customers is not a pleasant ordeal especially whenever a treatment plant is being expanded to provide capacity for undeveloped properties and outside contributing municipalities. This planning process has been underway for the last several years and every possibility of avoiding the plant expansion has been evaluated. The Township Supervisors have indicated that "A No Action" is not an acceptable alternative for sewage disposal in the Township. As indicated earlier, the Township has taken many steps and has expended an extensive amount of money to have its own infiltration/inflow cleaning equipment, video equipment and collection system team which performs cleaning and televising services and has repairs done to broken pipes, leaking manholes, etc. as required. The enforcement of Township Regulations in regards to sources of infiltration/inflow, the implementation of pretreatment regulations in accordance with DEP and EPA requirements have been instituted. Notification to the contributing municipalities of their obligation to

Mr. William H. Fulton

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reduce excessive infiltration/inflow have been sent. All three contributing municipalities have ongoing infiltration/inflow programs which are designed to reduce excessive flows to the treatment plant.

4. **The Township should specify how the "On-Lot Management District Program" will be implemented.**

The draft On-Lot Management Disposal System Program was included in Appendix K. The actual details of how the program will be administered is what will be the primary topic of discussion with the Supervisors. Prior to the adoption of the On-Lot Management Disposal System Program, a draft will be provided to the Planning Commission and County Health Department for their input.

OTHER COMMENTS

The County Planning Commission supports the recommendation contained on page GP-110 that the Township's Comprehensive Plan be updated to include existing conditions and a reevaluation of the goals and objectives of West Goshen Township. We encourage you to do this as part of the County Vision Partnership Program which would provide technical and financial support.

The Township will, as part of their ongoing governmental duties, be reviewing the Township's comprehensive plan, updating and reevaluating the goals and objectives of West Goshen Township. The Township will consider working through the County Vision Partnership Program.

Should you have any additional questions or comments on our responses to the Planning Commission's review of the Act 537 Plan dated September 19, 1996, do not hesitate to contact me.

Sincerely,

Max E. Stoner, P.E.
President

MES/ksd

cc: West Goshen Township Board of Supervisors
West Goshen Sewer Authority
West Goshen Township, John M. Scott, Plant Superintendent
East Goshen Township
West Whiteland Township
Westtown Township

GLACE ASSOCIATES, INC.

CONSULTING ENGINEERS
3705 Trindle Road
Camp Hill, PA 17011

717-731-1579 • FAX 717-731-1348

This acknowledges that the following has received a copy of the West Goshen Township Act 537 Plan dated September 1996 for review and written comment:

East Goshen Township Board of Supervisors
1580 Paoli Pike
West Chester, PA 19380

Received By

Date

Joanne Morgan
9/20/96

GLACE ASSOCIATES, INC.

CONSULTING ENGINEERS

3705 Trindle Road
Camp Hill, PA 17011

September 19, 1996

717-731-1579 • FAX 717-731-1348

File: 89036.A

East Goshen Township Board of Supervisors
1580 Paoli Pike
West Chester, PA 19380

Attn: Mr. Rick Smith, Township Manager

Dear Rick:

Re: West Goshen Township Act 537 Plan
Review Request

Enclosed please find a copy of the West Goshen Township's proposed Act 537 Plan. This Plan is being provided to you for review and written comments back to West Goshen Township for inclusion in the consistency evaluation section of the Plan. West Goshen Township is under a very tight timetable in regards to its desire to expand the existing treatment facility. Therefore, your prompt response to this request for review of this planning document would be most appreciated.

Should you have any questions in regards to the contents of the Plan or any alternative that was evaluated, do not hesitate to contact me. I am available to meet with you after your initial review to answer any questions in regards to the plan. Thank you in advance for your anticipated timely review and response.

Very truly yours,



Max E. Stoner, P.E.
President

MES/ksd

Enclosures

cc: West Goshen Township, Patricia L. Guernsey, Township Manager
West Goshen Township, John M. Scott, Plant Superintendent
West Goshen Sewer Authority

GLACE ASSOCIATES, INC.

CONSULTING ENGINEERS
3705 Trindle Road
Camp Hill, PA 17011

October 2, 1996

717-731-1579 • FAX 717-731-1348

File: 89036.A

CERTIFIED MAIL

P-832-492-797

East Goshen Township Board of Supervisors
1580 Paoli Pike
West Chester, PA 19380

Attn: Mr. Rick Smith, Township Manager

Dear Mr. Smith:

Re: West Goshen Township Act 537 Plan
Review Request

On September 20, 1996, we hand delivered a copy of West Goshen Township's revised draft Act 537 Plan for your municipality's review. After meeting with DEP representatives, they indicated that each contributing municipality needs to have their township planning commission provide written comments on the draft Act 537 Plan and have each township pass a resolution adopting West Goshen's Act 537 Plan. A copy of a draft Adoption Resolution is enclosed. This can either be utilized "as is" or modified by your Board to be more specific in regards to the portion of the plan pertaining to your Township.

Your prompt response to this request will be greatly appreciated. Please send the original information to West Goshen Township and on this request or on the Plan.

Sincerely,

Max E. Stoner

Max E. Stoner, P.E.
President

MES/ksd

cc: West Goshen Township
West Goshen Township
West Goshen Sewer Au

SENDER:
Complete items 1 and/or 2 for additional services.
Complete items 3, and 4a & b.
Print your name and address on the reverse of this form so that we can
print this card to you.
Attach this form to the front of the mailpiece, or on the back if space
is not permitted.
Write "Return Receipt Requested" on the mailpiece below the article number.
The Return Receipt will show to whom the article was delivered and the date
received.

Article Addressed to:

East Goshen Twp. Board of Sup
1580 Paoli Pike
West Chester PA 19380

Signature (Addressee)

Signature (Agent)

I also wish to receive the
following services (for an extra
fee):

1. ☐ Addressee's Address
2. ☐ Restricted Delivery

Consult postmaster for fee.

4a. Article Number

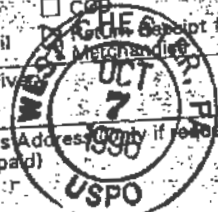
P-832-492-797

4b. Service Type

- ☐ Registered ☐ Insured
☐ Certified ☐ COD
☐ Express Mail

7. Date of Delivery

8. Addressee's Address (only if requested
and fee is paid)



GLACE ASSOCIATES, INC.

CONSULTING ENGINEERS

3705 Trindle Road
Camp Hill, PA 17011

717-731-1579 • FAX 717-731-1348

This acknowledges that the following has received a copy of the West Goshen Township Act 537 Plan dated September 1996 for review and written comment:

Westtown Township Board of Supervisors
P.O. Box 79
Westtown, PA 19395

Received By Soelene L. Goff
Date 9/20/96

GLACE ASSOCIATES, INC.

CONSULTING ENGINEERS
3705 Trindle Road
Camp Hill, PA 17011

September 19, 1996

717-731-1579 • FAX 717-731-1348

File: 89036.A

Westtown Township Board of Supervisors
P.O. Box 70
Westtown, PA 19395

Attn: Ms. Evelyn Groff, Township Secretary

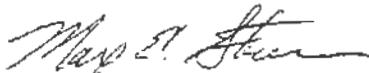
Dear Evelyn:

Re: West Goshen Township Act 537 Plan
Review Request

Enclosed please find a copy of the West Goshen Township's proposed Act 537 Plan. This Plan is being provided to you for review and written comments back to West Goshen Township for inclusion in the consistency evaluation section of the Plan. West Goshen Township is under a very tight timetable in regards to its desire to expand the existing treatment facility. Therefore, your prompt response to this request for review of this planning document would be most appreciated.

Should you have any questions in regards to the contents of the Plan or any alternative that was evaluated, do not hesitate to contact me. I am available to meet with you after your initial review to answer any questions in regards to the plan. Thank you in advance for your anticipated timely review and response.

Very truly yours,



Max E. Stoner, P.E.
President

MES/ksd

Enclosures

cc: West Goshen Township, Patricia L. Guernsey, Township Manager
West Goshen Township, John M. Scott, Plant Superintendent
West Goshen Sewer Authority

GLACE ASSOCIATES, INC.

CONSULTING ENGINEERS
3705 Trindle Road
Camp Hill, PA 17011

October 2, 1996

717-731-1579 • FAX 717-731-1348

File: 89036.A

CERTIFIED MAIL

P-832-492-798

Westtown Township Board of Supervisors
P.O. Box 79
Westtown, PA 19395

Attn: Ms. Evelyn Groff, Township Secretary

Dear Ms. Groff:

Re: West Goshen Township Act 537 Plan
Review Request

On September 20, 1996, we hand delivered a copy of West Goshen Township's revised draft Act 537 Plan for your municipality's review. After meeting with DEP representatives, they indicated that each contributing municipality needs to have their township planning commission provide written comments on the draft Act 537 Plan and have each township pass a resolution adopting

used. This can either be the portion of the

the original have any questions

SENDER: <ul style="list-style-type: none">• Complete items 1 and/or 2 for additional services.• Complete items 3, and 4a & b.• Print your name and address on the reverse of this form so that we can return this card to you.• Attach this form to the front of the mailpiece, or on the back if space does not permit.• Write "Return Receipt Requested" on the mailpiece below the article number.• The Return Receipt will show to whom the article was delivered and the date delivered.		I also wish to receive the following services (for an extra fee): <ul style="list-style-type: none">1. <input type="checkbox"/> Addressee's Address2. <input type="checkbox"/> Restricted Delivery Consult postmaster for fee.	
3. Article Addressed to: Westtown Twp. Board P.O. Box 79 Westtown PA 19395		4. Article Number 832-492-798	
5. Signature (Addressee)		6. Service Type <ul style="list-style-type: none"><input type="checkbox"/> Registered<input type="checkbox"/> Certified<input type="checkbox"/> Express Mail<input type="checkbox"/> Insured<input type="checkbox"/> COD<input checked="" type="checkbox"/> Return Receipt for Merchandise	
7. Date of Delivery		8. Addressee's Address (Only if requested and fee is paid)	
9. Signature (Agent) Evelyn L. Groff			

PS Form 3811, December 1991 U.S. GPO: 1993-352-714 DOMESTIC RETURN RECEIPT

cc: West Goshen Township, Patricia L. Guernsey, Township Manager
West Goshen Township, John M. Scott, Plant Superintendent
West Goshen Sewer Authority

GLACE ASSOCIATES, INC.

CONSULTING ENGINEERS
3705 Trindle Road
Camp Hill, PA 17011

717-731-1579 • FAX 717-731-1348

This acknowledges that the following has received a copy of the West Goshen Township Act 537 Plan dated September 1996 for review and written comment:

West Whiteland Township Board of Supervisors
P.O. Box 210
222 North Pottstown Pike
Exton, PA 19341

Received By P. Lester
Date 9/20/96